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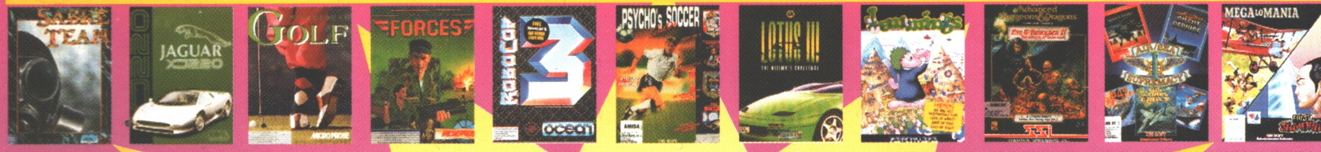

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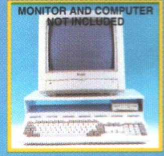

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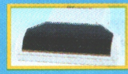

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A warm welcome to you from Tim Smith, editor of the Specials.

Hello and welcome to the fifth of the ***Amiga Format Specials***. This particular special deals with those Amiga-related questions that my colleagues over at our parent magazine (as well as the *Specials* team itself) have been asked most often in the past.

These questions have cropped up at shows, in the pages of ***AF***, and over the phone on those incredibly hectic Tuesday reader-call sessions.

I have made the decision not to print names and addresses of the people asking the questions for two very good reasons:

(1) more than one person will have asked a similar question. So boiling the central question down means that we can inform more people in this one very packed issue.

(2) we have been able to print more questions and answers if we save on the space.

So what you have over the next 140+ pages are page after page bursting with Amiga-related information. I also hope that you will get more than just some very useful information from your time with this Special. I hope that when you read the questions you will realise that many, many other people have the same things on their minds as you do when you boot-up your favourite computer, there are always answers!

Have fun and please take some time to fill in the (FreePost) questionnaire that starts on page 131.

Thanks a lot!

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NEW **BURST NIBBLER**
Now this super disk copier program is built into Action Replay Mk III. Just imagine a superfast, efficient disk copier program at the press of a key - no more waiting.

SAVE PICTURES AND MUSIC TO DISK
Pictures and sound samples can be saved to disk. Files are saved directly in IFF format suitable for use with all the major graphic and music packages. Samples are displayed as screen waveform.

NEW **PAL or NTSC MODES SELECTABLE-**
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NEW **SLOW MOTION MODE**
Now you can slow down the action to your own pace. Easily adjustable from full speed to 20% speed. Ideal to help you through the tricky parts!

MANY MORE INSTANT CLI COMMANDS-
like Rename, Relabel, Copy, etc.

NEW **RESTART THE PROGRAM**
Simply press a key and the program will continue where you left off.

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At the press of a key now you can view the Machine Status, including Fast Ram, Chip Ram, RamDisk, Drive Status, etc.

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NEW **IMPROVED RAM EXPANSION SUPPORT**
Now many more external Ram Expansions will work with all Action Replay III commands.

DISKCODER
With the new "Diskcoder" option you can now 'tag' your disks with a unique code that will prevent the disk from being loaded by anyone else. "Tagged" disks will only reload when you enter the code. Very useful for security.

NEW **SET MAP-**
allows you to Load/Save/Edit a Keymap.

PREFERENCES
Action Replay III now has screen colour preferences with menu setup. Customise your screens to suit your taste. Very simple to use.

DISK MONITOR
Invaluable disk monitor - displays disk information in easy to understand format. Full modify/save options.

IMPROVED PRINTER SUPPORT-
including compressed/small character command.

NEW **DOS COMMANDS**
Now you have a selection of DOS commands available at all times - DIR, FORMAT, COPY, DEVICE, etc.

NEW **FILE REQUESTER-**
if you enter a command without a filename, then a file requestor is displayed.

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Disk Copy at the press of a button - faster than Dos Copy. No need to load workbench - available at all times.

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- Copper Assemble/Disassemble - now with suffix names

REMEMBER AT ALL TIMES YOU ARE INTERROGATING THE PROGRAM IN IT'S "FROZEN" STATE WITH ALL MEMORY AND REGISTERS INTACT - INVALUABLE FOR THE DE-BUGGER OR JUST THE INQUISITIVE!

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GET TO KN… YOUR AM…

The Amiga is the name of Britain's most popular and most powerful home computer. Over the next eight pages we'll tell you about the history of the Amiga, how to set up your new machine, and we'll guide you through the basics of Workbench, Shell, DTP, word processors and much, much more. Welcome to the world of the Amiga

The A600: its launch into the UK heralded a new, compact style for the entry-level Amiga.

How many Amigas?

Q Is there just one kind of Amiga?

A The first Amiga was the A1000, unveiled at the Consumer Electronics Show in Las Vegas in 1985 and released in Britain in 1986 for £1,500. This has been followed by a number of other machines, all of which are listed below – shows that you're not just using a small company's games machine after all doesn't it?

Amiga	UK Launch Date	Launch Price
A500	1987	£599
A2000	1987	£1,500
A3000	1990	£2,000
A1500	1990	£1,000
A500 Plus	1991	£399
A4000	1992	£2,100
A600	1992	£399
A600HD	1992	£499
A1200	1992	£399
A4000-30	1993	£999

There are also several specialist machines such as the A3500, the A3000T (for Towe) and the A2500, and of course CDTV.

Hard decision

Q What's the advantage of having an A600HD rather than an A600?

A You can store data directly on hard drive, so you don't have to bother with loading and swapping floppy disks when you want to run that data. When you start exploring the full potential of your Amiga, you'll find a hard drive saves you a lot of time.

A relief

Q Is there a bundle for the Amiga 1200?

A Yes, Commodore UK launched an A1200 bundle to tie in with Comic Relief Day in March. It costs £399, the same as the list price for

The Amiga 1200: some say that this is the re-birth of the Amiga legend. Others are a little less melodramatic and simply see it as a fine computer.

AMIGA JARGON BUSTED WHILE'U'WAIT

Q **Could you give me a quick rundown on common Amiga acronyms?**

A That's our job. What follows over the next few pages is the Jargon Buster to end all Amiga acronymic Jargon Busters!

AF: ***Amiga Format***. The world's best-selling Amiga magazine.

AFS: ***Amiga Format Specials***.

AGA: This stands for Advanced Graphics Adaptor, and is part of the Amiga's new AA chip set (found in the A1200 and A4000). One of the greatest attributes of the Amiga is that it doesn't rely solely on its Central Processor Unit for all the number crunching computing work, but 'delegates' certain tasks to the AGA chip set. The AGA chip set was first introduced in 1992 with the top-of-the-range A4000, and quickly came to the mass market with the launch of the A1200. The AGA chip set vastly increases the Amiga's graphics capabilities, so that the A1200 can display 256 colours in games or use a 256,000 colour mode in graphics programs. The rumoured successor to the AGA chip set is the AAA chip set.

ASCII: American Standard Code for

OW IGA

The A4000 and its sibling, the A4000-30, could give similarly specified Apple Macintoshes more than a run for their money.

The A1500 looked as if it might be interesting, but it was really only a slightly souped-up A500.

the A1200, and a donation of £10 per bundle is being made to Comic Relief. The bundle contains an A1200, RF lead, system operating disks and so on, plus a copy of Ocean's *Sleepwalker*, and a special Comic Relief edition of ***Amiga Format***.

Fixing it

Q **What do I do if my Amiga won't work?**

A First check that you've followed the setting up procedure correctly. Check that the mains socket is working, and that your plug has a (13 amp) fuse in it. Yes, we know it's obvious, but it's still worth checking.

If you are happy that you've set everything up properly, get in touch with the dealer and ask them to sort out the problem or provide a replacement.

As with any product, there's a chance that a small percentage of Amigas will be faulty.

Milk the monitor

Q **Is it true that I have to buy a monitor to use with my Amiga?**

A No. You can use a television set, but a monitor will give you a much better quality image, and is essential if you want to use word processing or other packages that require good screen resolution.

Warranty & post

Q **Is it important to send off the warranty, or will I be covered anyway?**

A It is vitally important to send off your Amiga's warranty card, and no, you won't be covered for faults if you fail to send it off.

As soon as you find the warranty card (it's in a blue and white envelope in the Amiga box with the word 'Important' on it), fill it in and send it off.

Warranty & peace

Q **What does the warranty entitle me to?**

A The normal Commodore warranty lasts for 12 months and entitles you to free in-home service. At the moment this means that you are entitled to a visit (in-house) from your friendly local Wang-franchised Amiga engineer. This on-site warranty is a recent addition to the Commodore line-up of customer support items.

Why not write in and tell us if you've made use of this system and how you think it has worked for you.

What's Shell?

Q **What is Shell, why do need it?**

A Shell is one of the Amiga's alternatives to Workbench. You can carry out many of the functions of Workbench, such as displaying the contents of a disk, using Shell, but instead of using the mouse and pointer, as with Workbench, you type commands in via the keyboard with Shell.

If you wanted to display the contents of a disk using Workbench, you would double click on the disk icon to get a window containing the disk's files and directories. With Shell you would get the same result, but in a different format, by typing in the command `Dir`. It's worth pausing here to consider that the Shell is called Shell because it forms a shell, or barrier, around the Disk Operating System through which you can communicate with the Disk Operating System. If the Shell wasn't there, you'd have to communicate directly with the Disk Operating System in machine code.

The Shell enables you to enter commands via the keyboard that provide direct access to AmigaDOS and its many facilities. 9

Shelling out

Q **Just what is the point of using Shell instead of Workbench?**

A Although many of the functions of Shell are common to Workbench, Shell is a more powerful system that enables you to do things Workbench can't handle.

For example, using Shell you could copy every file starting with the letter 'T' in all directories to a sub-directory called Backup, and give all the files an extension name.

That is just not possible with Workbench. Another example: copying a file is easy enough using Workbench, but what if you want to copy several hundred files.

It would take ages with Workbench, but Shell provides a useful operation called Pattern Matching or Wildcard useage.

This enables you to specify a group of files based around a selection criteria by using the char-

Continued on page 10

Information Interchange. This is a simplified format for text that enables one computer to understand information created by another. ASCII files lack cosmetic touches such as bold or italicised text.
BBS: Bulletin Board Service. A computer you and other users can link up with via a telephone line by using a modem.
CAD: Computer Aided Design. CAD programs are used mainly for technical drawing (design etc) and store data about images mathematically.
CBM: Commodore Business Machines. The parent company of Commodore UK. The American-based CBM is responsible for the Amiga range and is itself part of the larger company Commodore International.
CD-i: Compact Disc interactive. A system developed by Philip's which is similar to CDTV in that it uses CDs rather than floppy disks as the computer data storage system.
CD-ROM: Compact Disc Read Only Memory: A CD that stores computer data.
CDTV: Commodore Dynamic Total Vision. Launched in 1991 CDTV was basically an A500 with a CD-ROM drive in a black VCR-style box. It used CDs rather than floppy disks on which to store data. It was controlled by means of a hand-held set rather than a keyboard in an effort to make computers more acceptable to home users by making them look less like computers. CDTV failed to grab the imagination, but it seems only a matter of time before CDs become a leading medium for data storage.
CES: Consumer Electronics Show. Hugely

Continued on page 10

Just because you got your Amiga in a games pack, doesn't mean that you can't be serious.

acters # and ?. So if you had a disk in DF0: with files on it called Pic 1, Pic 2, Pic 3, and Letter 1, Letter 2, Letter 3, you might use #? like this:

`Copy df0: #? df1:` This copies all the files on df0: to another disk (df1:).

`Copy df0: Pic #?` This instructs Shell to copy all the files beginning with the word Pic, and so all three Pic files would be copied.

`Copy df0: #? 2` This copies the files containing the number 2, so Pic 2 and Letter 2 are copied.

What's the DOS?

Q What is AmigaDOS?

A AmigaDOS stands for Amiga Disk Operating System. A strange name because it isn't the Amiga's operating system!

It has its critics (quite a few of them) because it is notoriously difficult to get into. Learning to use AmigaDOS is a little like learning a programming language, it can be daunting at first but once you've cracked it you'll find a whole new world opens out in front of you.

If you are new to the machine, you are probably better off with the Workbench – or you might like to invest in the *Directory Opus 2* utility (see our section on Utilities). *Directory Opus 2* costs £79.95 from INOVAtronics (via Silica, 081-309 1111 in the UK).

On the DOS

Q Where is AmigaDOS?

A You gain access to AmigaDOS through the Shell, which is contained in the Workbench. Don't worry its not all as complex as it sounds.

In your interface

Q I've heard Shell referred to as the CLI, what does this mean?

A CLI stands for Command Line Interface. Unlike a GUI (Graphical User Interface) the CLI works by taking text commands and interpreting them into a language that your Amiga can understand. In the case of the Amiga, Shell is the Command Line Interface that interprets commands entered via the keyboard and converts them into a format that AmigaDOS can understand.

Collecting Shells

Q How do I access Shell?

A Insert your Workbench disk into the drive, switch on your Amiga and wait for the Workbench to load. When all disk activity has ceased, double click on the Workbench Disk icon. This will display a window full of icons on your screen. In the top lefthand corner of the screen there should be an icon labelled Shell. Double click on this and a window should appear on the Workbench screen containing a cursor and the following:

```
1. SYS>
```

This is the Shell prompt, and is basically Shell's way of saying "`OK, you've activated me, now what do you want me to do`".

If you now type in `Dir` you should get a directory of the Workbench disk.

Shell formatting

Q How do I format a disk using Shell?

A All you have to do is tell your Amiga that you want to format a disk, identify which drive the disk you wish to format is in and give the disk a name. If you want to format the disk in the internal disk drive (called df0, which stands for disk floppy 0) and you wanted to call the disk MyFiles, you would enter the following:

```
Format Drive DF0: Name "MyFiles"
```

Shell will now prompt you to insert a disk into the internal drive and press [RETURN] to start the formatting process.

Workbench press

Q What is Workbench?

A The Workbench program comes on a disk with your Amiga. Without launching into technicalities, the best way to describe Workbench is as a management or housekeeping system for programs and files. Using the Workbench you can carry out many functions, the most common of which are formatting disks, copying disks and files, renaming loading and deleting files.

Get loaded

Q How do I load Workbench?

A At base, Workbench is the software you need in order to communicate with your Amiga, and to access AmigaDOS and the Shell. To load Workbench, all you have to do is insert the disk, with the metal bit first and the label facing upwards, and switch on your Amiga. It is vitally important to make back-ups of your Workbench disks.

Gooey GUI

Q I've heard Workbench referred to as the GUI. What does this mean?

A GUI stands for Graphical User Interface and is a term that describes the way in which you control the Workbench program. To understand the principles of GUI you have to appreciate that it wasn't all that long ago that you'd have to be fluent in a mathematical language to communicate with a computer, and that you had to enter these commands by typing them in at a keyboard.

But in the late 70s researchers at Xerox's Palo Alto Laboratories developed the WIMP (Window Icon Menu Pointer) system, that was further refined to become the GUI. This replaced the need to enter computer language commands by a system whereby you can instruct the computer to do something by pointing at graphic symbols with the mouse pointer and clicking on it, or selecting a function from a menu and clicking on it.

Mousey mousey

Q How do I use the mouse to control Workbench?

A There are four main mouse functions that you need to understand. They are:

Click: move the mouse pointer over an object on the screen and press the lefthand mouse button once. For example, clicking on the box in the top lefthand corner of the window closes that window.

Double click: move the mouse pointer over an object and press the lefthand mouse button twice in rapid succession. Clicking on a drawer or disk icon displays the contents of the drawer or disk.

Select: to select a particular icon, move the mouse pointer over it and click on it with the left-

important computer and electronics industry show held in Las Vegas every year. It was at the CES in 1984 that the prototype computer that went on to become the Amiga we all know and love, was unveiled.

CLI: Command Line Interface. A program such as Shell, that enables you to type commands into AmigaDOS (Amiga Disk Operating System) for standard operations such as copying files or getting a directory.

CPS: Characters Per Second. The speed of a printer, measured in the number of characters it can produce every second.

CPU: Central Processing Unit. The decision-making chip, a sort of silicon genius at the heart of your Amiga, that tells everything else what to do and when to do it. The different CPUs in the various models of Amiga are all based on the 68000 family made by Motorola. The A500 and A600 use 68000 CPUs, the A1200 has a 68020, the A3000 uses a 68030 and the A4000 a 68040.

CTW: *Computer Trade Weekly*. The British computer industry's newspaper.

DF0: Disk Floppy 0 (zero). The internal floppy drive of all Amigas.

DH0: Disk Hard 0 (zero). An Amiga's internal hard drive.

DIP: Dual Inline Pole. This term is almost exclusively applied to the DIP switches found in printers. By on or off a series of switches you set up the printer to work with a given computer. This system has now been largely replaced by front panel displays.

DMA: Direct Memory Access. This describes a process whereby when a programming

Your mouse and the Amiga's icons work extremely well with each other, putting power in your palm.

hand mouse button. When an icon is selected it is highlighted – its colour changes. Clicking elsewhere on the screen deselects the icon. To make the icon fulfil its particular function, double click on it.

Select a menu option: this time you use the righthand mouse button. Hold it down and the text within the Workbench title bar will change, to display four menu headings. To reveal the contents of a menu, simply move the mouse pointer over the appropriate heading and the contents will appear below the main heading. To select one of the menu items, place the pointer over it, click on the lefthand mouse button and then let go of the righthand mouse button. Couldn't be easier.

Modern icons

Q What are icons?

A Icons are graphical representations of a given operation. Each icon on the Workbench screen will do something when you click on it. For example, a program icon will load the program assigned to it, and a disk icon will display the contents of the disk when it is activated by double clicking on it.

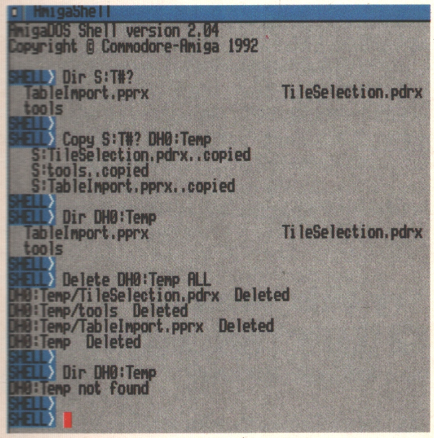
There are four icon types: Disk, Drawer, Tool and Project. Let's take a quick look at what they do.

Disk icon: Disk icons are automatically displayed when a disk is inserted. Double clicking on a Disk icon tells Workbench that you want to see the contents of the disk. Workbench will then open the relevant window, read the contents of the disk and display any data file icons contained on that disk.

Drawer icon: these enable you to move into subdirectories (drawers) on a disk. When you double click on a Drawer icon Workbench will open a window and display whatever is inside the drawer.

Tool icon: these are the ones that look like hammers. They represent programs that don't have their own icons, and double clicking on a tool icon will run the program attached to it.

Project icon: a Project icon is attached to a data file – a data file is a file that has been created by a program, such as a text file created in a word processing program. Double clicking on a project icon can load the data file and the program that created it. However, not all programs make use of this function, so don't worry if double clicking on a data file Project Icon has no effect.



There are so many options to you with the Amiga. There's AmigaDOS, Workbench, and the Shell.

Disk formatting

Q Why do disks need to be formatted?

A When you buy a blank disk, it is not intended for exclusive use by your Amiga – it could be used by any other computer with a 3.5 inch disk drive, such as an Apple Macintosh or PC. In order to use a disk on your Amiga it must first be converted into a format the Amiga understands.

Clean mice

Q Is it worth buying a mouse mat?

A Yes. A mouse mat provides a smooth, clean surface rather than the fluffy, uneven surfaces that most tables offer you. A perfectly good mouse mat only costs between £3 and £5.

Stay tuned

Q I know I have to tune a TV if I want to get an Amiga signal, but do I also need to do this with a proper monitor?

A No, just connect up the lead and switch on.

We recommend...

Q Why does *Amiga Format* always recommend Electronic Arts *DeluxePaint* program?

A Two reasons. First: *DPaint* is an excellent paint package – it's easy to use and very powerful. Second: It has been bundled Amigas since the first ever Amiga bundle hit the shops.

What's a pixel?

Q I've heard the term pixel used by people when they're talking about using *DPaint* and other paint packages. What exactly is a pixel?

A The word pixel is another one of those computing concatonations derived from two words PIX (short for pictures) and ELements. Pixels are described as a dots of colour, but more accurately a pixel is an open square on the screen (like a square on a bit of graph paper). And when you select a colour, each square is filled with it.

Brushing up

Q What is a brush?

A A brush is the device you use for drawing a line in a paint package.

The brush can be one or more pixels wide and most programs give you a choice of brushes of different sizes and shapes.

Continued on page 12

Q What's what with my Amiga?

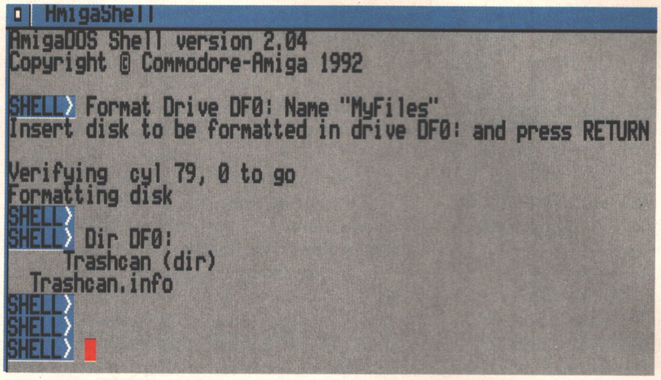
A Apart from any software that was bundled with your A600, you should have the following:
ONE POWER SUPPLY UNIT – this is the brick-shaped unit that links your Amiga to the mains electricity supply. Be warned and don't tinker with this if it looks as if something might be wrong with it. The best thing to do is to contact your dealer.
ONE MOUSE – the easiest way of communicating with the Amiga. You should be aware however, that there are other makes of mouse available (make sure to read our Hardware Guide in August).
ONE TV LEAD, also known as a Radio Frequency (RF) lead – this enables you to view your Amiga using your television, which means that you don't have to pay extra money for a monitor.
AN ENVELOPE – this is important because it contains your warranty. Read the contents and send it back because it could happen to you.
A MANUAL – make use of it.
DISKS – containing your operating system and extras. Back these up now.

instruction occurs that tells one of the custom chips to do something, that custom chip can go directly to the RAM (Random Access Memory), without having to ask the Central Processing Unit for permission.
DOS: Disk Operating System. A sort of computer ignition system, that enables you to communicate with it and get the thing going as in AmigaDOS (Amiga Disk Operating System).
DPI: Dots Per Inch. Isn't it quaint and somehow reassuring in a world of millimetres and centimetres to find that the good old inch still has a role to play. The quality of a printer's resolution is measured in DPI. The more dots per inch the better the quality. Most printers are capable of producing between 240 and 360 DPI. The Imagesetter printer we use to produce the Amiga Format Specials is capable of a whopping great 2400 DPI.
DTP: Desktop Publishing. Using your Amiga and a DTP program you can combine pictures and words in different typefaces, sizes and fonts, to produce, leaflets, fanzines, or express your creative urges in any number of directions.
ECS: Enhanced Chip Set. The name given to the set of Amiga Custom chips introduced with the A500 Plus. These chips were called Fat Agnus, Denise, Paula and Gary.
ECTS: European Computer Trade Show. The big European bash for the computer industry that is held in different European venues each year.
EPS: Enhanced Post Script. A file format

Your resolution

Q What does 'resolution' mean?

A The number of pixels on a screen determines the resolution of a monitor. The greater the number of pixels, the higher the resolution, the clearer the image reproduced on-screen. High resolution also means that each pixel is smaller, hence more pixels on a screen. Resolutions are getting higher almost by the week, with figures such as 320 (pixels wide) by 256 (by pixels high) being bandied around willy-nilly. The Amiga, especially the A1200 and A4000, are more than well equipped in the ability to display in extremely high resolutions with the new AGA graphics format to the fore. This enables Amigas to display 1,024 by 800.



The Amiga has the most popular sized disk drive (3.5-inch) in the world, used by Macs, PCs and STs. Getting disks for it is easy, so is formatting them.

Tools of your trade

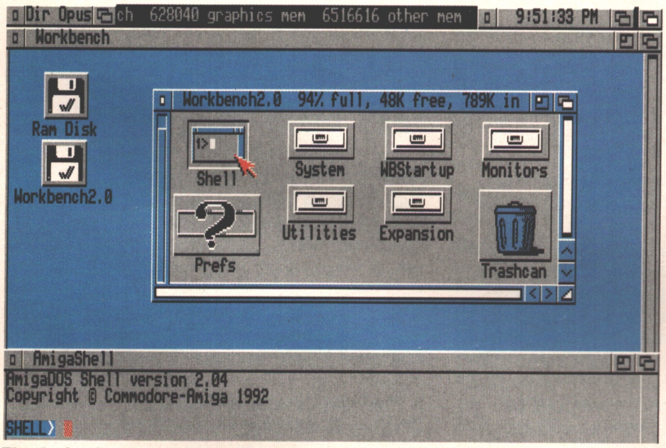
Q What are tools and what do they do?

A Tools are the features that enable you to paint and draw on the screen. They vary from program to program, but the most important ones you find on most paint packages are:
AIRBRUSH: creates a spray paint effect.
SHAPES: most programs enable you to select standard shapes such as circles, rectangles, ovals, circles and squares.
RUBBER-BANDING: This is a tool that enables you draw curves by drawing a line and then stretching and curving it. The alternative method of creating a curve is to draw it freehand.
BLENDS: this tool enables you to blend one colour into another.
DITHER: rather than having a straight line between two colours, dithering dots pixels about so the change from one colour to the other is smoother.
FILL-AREA: fills all pixels of a given colour with a chosen colour.
FILL-BOUNDARY: fills all the pixels, no matter what colour they are with a chosen colour, until it reaches a boundary determined by a certain colour.
PERSPECTIVE: enables you to move objects so they appear to be in perspective _ they get smaller as you move them further away and bigger as you bring them closer.

No shame about Ray

Q What is ray-tracing?

A Ray-tracing is a process of creating images that look realistic by using three-dimensional models of objects and a program that calculates how light from a given source falls on the object and is reflected to create an image. This process is called ray-tracing because it traces the path of a ray (or more exactly of rays) of light and then calculates the data about an object from the way in which the ray of light reacts when it strikes the object, the amount of light that is reflected, the direction in which it is reflected, and so on. Once the calculations for the object have been completed by a ray-tracing package, you can render the image (create it on screen).



The Amiga is the only home computer that can truly multi-task – it can actually do two things at the same time. The PC and Mac can only time-share.

Rendered useful

Q I've read about rendering ray-traced images. What does this mean.

A Ray-tracing is not a means of creating an image, but of storing information about an image, usually as a series of mathematical equations or as a list of dimensional co-ordinates. Rendering is the process of interpreting this information to produce a screen representation of the stored data. This is a complicated and memory intensive process that can take several hours or even days.

It's due process

Q What is an image processor, and what doI use it?

A Image processing is a program such as *Art Department Professional* that enables you to carry out two main functions with graphic images. These are as follows:

1) Converting images involves changing them from one file format to another. This is a vital function if you intend to use your Amiga for any function that involves using pictures, such as desktop publishing, because images are stored in many different formats, depending on what sort of computer they were created. An image processing program enables you to convert images created on, for example, a Mac into an Amiga format.

2) Manipulate images for example if you have an image that you are not entirely happy with you can load it into an image processing program an adjust the brightness, contrast or adjust the red green and blue prime colours that make up all images. You can also crop, scale and do all manner of wonderful things to images in an image processing program.

Try this sample

Q My mate, who has an ST, says that the Amiga has no MIDI port, so can't do anything with music. Is this true?

A This is rubbish. There are plenty of MIDI adaptors available for the Amiga, and it is fast becoming one of the most widely used professional computer in music. Well, any computer is only as

used for saving pictures and other graphics.
F1GP: *Formula One Grand Prix*. The excellent motor racing game from MicroProse bundled in the A600 Wild Weird and Wicked pack, which received a 92 per cent *Amiga Format Gold* rating in AF 32.
FAST: Federation Against Software Theft. Body set up by the software houses to clamp down of software theft (illegally copying and selling disks) by seizing disks, prosecuting pirates and lobbying for effective action against them. One man prosecuted by FAST has served a three month sentence for pirating Amiga disks.
FD: Floppy Drive. The drive into which floppy disks are inserted.
GUI: Graphical User Interface. The name given to a system, such as the Amiga Workbench program, that enables you to communicate with a computer by way of a mouse and pointer.
HAM: Hold And Modify. A graphics term, so called because it holds the screen and modifies it to display all the different coloured pixels available to you.
HD: Hard Drive. A unit containing a hard disk that is capable of storing far more data than a floppy disk. Once a program is installed to hard drive it can be loaded directly to the Amiga, saving you having to swap floppy disks.
IDE: Intelligent Drive Electronics: A standard used in the A600 and A1200 that enables you to connect hard disks to your Amiga. It took over from SCSI.
IFF: Interchange File Format. A standard way

good as the musician operating it, but in our opinion the Amiga is capable of producing very impressive results. For example, Urban Shakedown soared (Mmm right. ed) up the charts last year with a single called *Some Justice* that was created using two A500s. See our Music section for a more in-depth explanation of the Amiga's abilities.

Comm and get it

Q What does Comms mean and what is a BBS?

A Comms is short for communications, and is simply the process of using your Amiga to communicate with other Amiga users, usually via a Bulletin Board Service (BBS).

A BBS is a computer that has been set up to receive incoming calls from other users. Once you are connected to the BBS you can leave messages for other users and collect messages that have been left for you, and so communicate with Amiga users all around the world.

Cutting the BBS

Q What do I need to get in touch with a BBS?

A All you need to get into Comms is your Amiga, a phone, a serial cable, a modem and the appropriate terminal software to enable you to gain access to the BBS.

Once you've got all the equipment, plug the phone into the modem, and the modem into the phone socket. Attach the modem to your Amiga with the serial cable and load the terminal software. This will contain the numbers of various Bulletin Board Services. Select one from the dial menu and the modem will dial the number.

The BBS will answer the phone and there will be a burst of data noise as the two computers connect. You should then hear a beep and you should see the message Connect 2400 or something similar on your screen. You are now connected and just need to follow a series of screen prompts to find your way around the BBS.

You can now leave messages for other users and download (copy) programs from the BBS. Remember that it's only polite to send (upload) files to the BBS as well as take them for your own use.

Screeeeeeech!!! Pip!!

Q What is the screeching noise I hear when I connect up to a BBS?

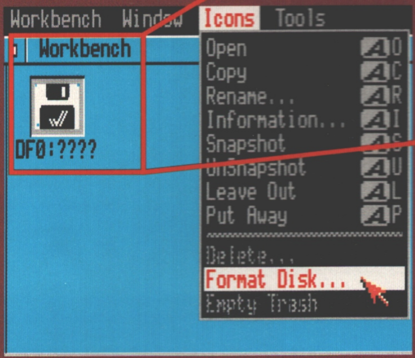
A This noise is the modem converting the binary data from the Amiga into high and low audi-

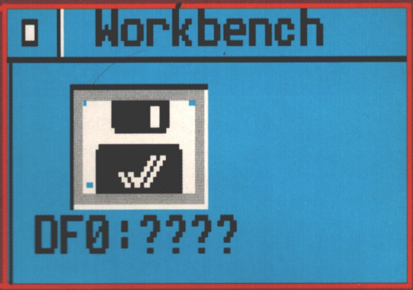
Continued on page 14

Formatting your disks: how to understand it...

Q How do I format a disk?

A Easy. First remove your Workbench disk, insert the blank disk you wish to format and then follow the instructions underneath the pictures:





1) Workbench takes you through disk formatting with little or no pain. You simply hold down the right mouse button in order to bring up the (hidden) menu bar. Then pull down the Icon menu by clicking on it, then click on Format Disk. The request below appears...

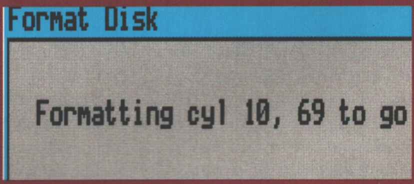
NB) The 3.5-inch disk format is the most popular in the world. It is used by Macs, PCs, STs and Amigas.

This means that when you buy disks they are not only blank, they are also still available to be used on any of these machine formats. Formatting a disk, in its simplest form, is the act of you telling the disk that it is now an Amiga disk.

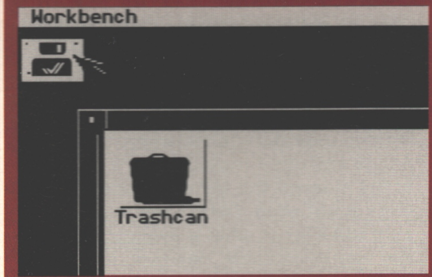
More technically, what the process does is to write the track and sector information (see our Peripheral Knowledge section for a detailed explanation of disks themselves) and also the boot-sector information that the Amiga looks for when a disk is inserted into the drive.

If this information is not written to a disk, then the icon above appears. This tells you that you have either to format the disk or eject it.

2) Formatting a disk is something you will do thousands of times in your Amiga-using life but it's a process not to be taken too lightly. Formatting a disk totally erases any information that was previously on it. This idea of permanence means that you will not be able to unerase any deleted data. So be careful.



3) The formatting process will take a minute or so as the Amiga's software and disk mechanism examines each part of the disk (this is also true of hard disk formatting). The one thing to bear in mind is that you should not try to remove a floppy disk from the drive during the formatting process.



4) Once the Amiga has finished the formatting process – you'll be told about this with an on-screen message – a different disk icon will appear on screen. This shows that the disk is a formatted Amiga version. Now you can name this disk and save data to it.

As you can see from the screenshot to the left, this formatted disk has a Trashcan already on it (this occurs during the formatting process, so you don't need to worry about it). You will also notice that there is only 834K free space on what should be an 880K disk. This is because the Amiga has to write boot information and the Trashcan data to the disk. The remaining space is all yours.

of storing pictures, graphics and sound.

MIDI: Musical Instrument Digital Interface. A standard code by which MIDI-equipped devices such as an Amiga and a synthesiser can communicate with one another.

NLQ: Near Letter Quality. Many printers offer one or more NLQ fonts for printing finished documents to a high standard. Printing in NLQ usually slows down the printer because the print head makes two or three passes over the paper overlaying one dot partially over another.

NTSC: National Television Standards Committee. The American colour TV system, also used in other parts of the world, which has 525 lines running at 30 frames a second. The A1200 is capable of displaying graphics on NTSC equipment or on the British PAL (Phase Alternation by Line) system.

PAL: Phase Alternation by Line. This describes the colour TV system used in Britain and many other countries that has 625 lines at 25 frames per second. The A1200 is capable of displaying graphics on PAL equipment or on the American system NTSC (National Television Standards Committee).

PCMCIA: Personal Computer Memory Card International Association. A high-powered group representing the major computer companies which is regulating the development of the personal computer memory card which is capable of storing vast amounts of memory and will eventually, if everything goes according to plan, slot into the side of your Amiga. Although PCMCIA

Continued on page 14

ble notes that can be transmitted down the telephone line and converted back into binary data by the BBS.

Going public

Q **Where is the Public Domain?**

A The Public Domain, or PD as it is usually referred to, is not a place but a term that is applied to software when the author has waived his or her copyright to it. This means that PD software can be freely distributed and copied without infringing the laws of copyright.

Where can I get PD?

Q **Where can I get Public Domain software?**

A The two main sources of PD software are Public Domain libraries, that operate on a mail order basis and advertise in the pages of ***Amiga Format***, and Bulletin Board Services, from which you can download (copy) PD programs.

Is it free? (part 1)

Q **Is Public Domain software free?**

A This depends where you get it from. If you download the programs from a BBS you don't have to pay for it, but you will need to invest in a modem, and you will also have to pay the cost of the phone call to the BBS, and possibly a subscription charge to join the BBS.

Public Domain software from a PD library costs the price of the disk, and the charge also includes an administration fee to pay somebody to organise the library. The important point about PD software is that it is far cheaper than commercial software, you can pick up programs for a couple of quid from a PD library, and it is often of a very high standard.

DTP for me

Q **I'm interested in getting started in desktop publishing, but is it really possible to produce high-quality results using my Amiga and a DTP program such as *PageSetter*?**

A It certainly is possible to produce results of the highest quality using a program of the quality of *PageSetter*. Obviously the quality of the finished product will depend to a great extent on how much money you are prepared to spend on colour printing and good-quality paper, but in terms of design, you can produce work as good as that you see in national magazines or newspapers. Your Amiga and a good desktop publishing program are more than adequate tools, the end result really comes down to your skill as a designer.

The word

Q **I want to get a word processing program for my Amiga, can you advise me what features I should look out for, and recommend a couple of good buys?**

***Deluxe Paint* is one of the best ways to get to know the non-games side of your Amiga.**

A The first thing to decide is whether you want to use your word processor purely for creating text or whether you want it to be capable of some graphics functions as well. If you want a text-only program then *Protext* is a good buy at £80.

If you intend to include graphics with your text then you should consider *Wordworth 2*, which has a recommended retail price of £129.99.

However, at the time of going to press Digita International were running a trade in deal whereby you got a copy of *Wordworth* for £59 if you send them your old word processing program, no matter what make. Contact them on 0395 270273.

Another good buy if you want to include graphics is *Final Copy 2* (£99.95).

Whichever word processor you choose, you should check that it enables you to carry out basic editing functions such as inserting and deleting text, blocking, copying and pasting text, and a search and replace function.

Ideally you should get a program with a British rather than an American dictionary – if a modern Amiga word processor doesn't have a UK version, if really isn't worth its asking price. It should also have a thesaurus.

It's also useful to be able to work on two documents at once, so that you can transfer text from one to another.

Check how fast the program is by making sure it doesn't slow down to a snail's pace when you use several different fonts and graphics, also make sure that your Amiga has enough memory to

Compact Disc collection

Q **What is CDTV?**

A **CDTV stands for Commodore Dynamic Total Vision. It is based on the old A500. It was released in 1989 and uses Compact Discs rather than than floppy disks in order to store data.**

Q **Is it worth buying CDTV?**

A **The *Amiga Format* opinion is that CDTV really hasn't fulfilled its potential as yet. New developments however, bode extremely well for th format.**

Without a doubt, CD is the way forward in data storage and retrieval for the Amiga and other computers. It's just that at the moment the software support for CDTV is not good. There's not much available and a lot of what is available isn't in any way remarkable. However, it is highly likely that CDTV will be updated in the not too distant future, and it may well be worth considering buying it when that happens.

Q **Will CDs eventually replace floppy disks?**

A **More than likely. The CD/floppy disk scenario is similar to the CD/vinyl situation in the record industry in that over the coming years CDs will gradually replace floppy disks.**

Q **What's the advantage of CDs over floppy disks?**

A **The advantages are many. CDs are less easy to damage than floppy disks, they don't wear out, and they can hold a lot more data. A CD holds 650Mb, the equivalent of 640 floppy disks. CDs are also more difficult to pirate than floppies, it would probably cost more to pirate a CD than it would to buy it legitimately.**

refers to the association, it is often used to refer to the card itself.

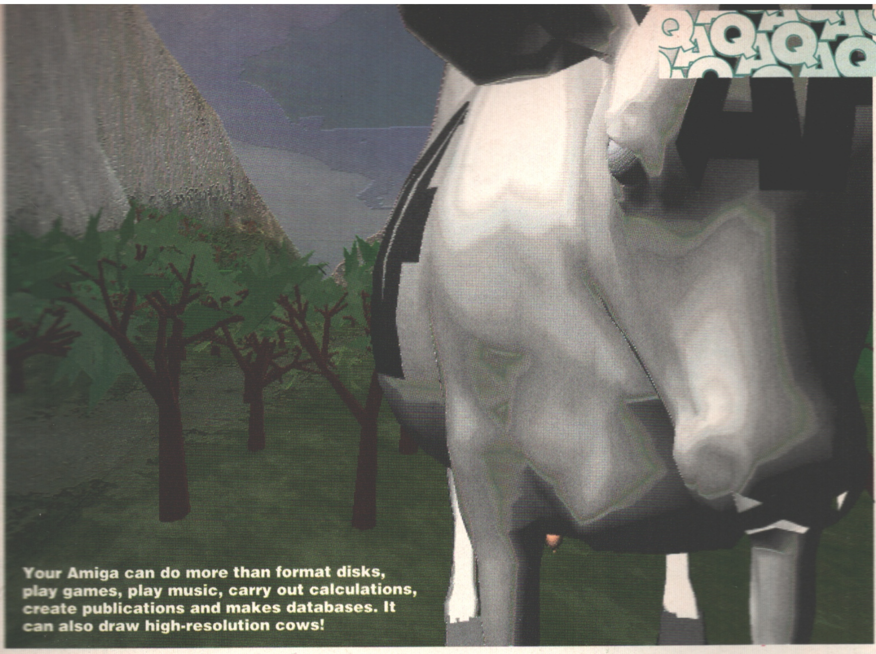
PD: Public Domain. When software programmers waive their copyright, the program enters the Public Domain where it can be copied or sold for just the price of a disk.

RAM: Random Access Memory. Memory that can be altered, read from or written to. RAM needs a constant supply of current, which is why you have to load programs every time you want to use them. An A600 has 1Mb of RAM as standard, an A1200 has 2Mb. You can increase the amount of RAM by installing a RAM expansion unit, which will make programs run faster.

RF: Radio Frequency. The method used to transmit combined video and audio signals from broadcaster to receiver.

RGB: Red Green Blue. The raw colours used to make up electronic pictures, rather than printed or painted ones.

ROM: Read Only Memory. Memory that cannot be altered or erased. ROM chips retain their data whether or not a current is supplied to the chip. ROM chips are found in many electrical devices such as microwave ovens and washing machines. In the Amiga they take care of low level tasks such as



Your Amiga can do more than format disks, play games, play music, carry out calculations, create publications and makes databases. It can also draw high-resolution cows!

run the program. *Wordworth 2*, for example requires a minimum of 1.5Mb of RAM. Although it might not sound like the most exciting aspect of computing with your Amiga, the more you get into word processing, the more you will wonder what in earth you did before you started. No more endless corrections, no more re-typing, no more having to write the same letter three times to different people. Trust us, investing in a good word processor could be one of the best and most time-saving investments you have chosen to make.

A matter of utility

Q Just what is the difference between a utility and a program?

A A utility is a program, but a program is not necessarily a utility – they can be games for example. Utilities are tools that enable you to fulfil certain very defined functions. A program on the other hand, can be a utility or can contain a number of utilities.

Spread the word

Q Using a spreadsheet program seems terribly complicated, can you explain how they work, in simple terms?

A Beacause the Amiga, like all computers, is basically a number crunching machine it is ideal for use with spreadsheet programs, that basically store data and present it in a given manner.

Spreadsheets consist of a huge number of digital pigeon holes arranged in a grid pattern. You can store numbers, formulae or textual data in these pigeon holes and then perform calculations such as adding together the values of certain boxes, or adding VAT to them.

All spreadsheets are based around much the same theory. As is the case with many a school maths book, the spreadsheet presents you with an empty page divided into a grid that is built from horizontal and vertical lines. The blank areas, the pigeon holes, that are formed by the intersection of these lines are called cells.

You enter figures into the cells, but if that's all you do, the spreadsheet will only display those figures, to get it to perform calculations you must tell it what to do in terms of a formula.

For example if you wanted to add two cells together, one of which was contained in cell A1 and the other in cell A2 you would simply express this with the formula A1+A2.

The spreadsheet would then perform the calculation and display the result.

For more complicated calculations spreadsheets have built-in formulae for standard operations, such as calculating VAT or percentages.

These are known as functions and enable you to carry out complicated calculations without having to enter the formulae yourself.

Data-basics

Q I want to catalogue my record collection on a database, but I don't know much about them. Could you give me a quick run-down on how they work? Please keep it simple.

A The best way to grasp the structure of a database is as an application form for your local video hire club. In database terms the form is called the record and each separate box of information, name, address, age and so on, are known as data fields.

In this sense a database is very similar to its predecessor, the filing cabinet, in that you would probably organise both a filing system and a database containing names and addresses by surname in alphabetical order.

If you did this with a database the main field, the surname, is known as the key or index field.

Where the database really comes into its own, is that it enables you to search through the database by accessing any of the boxes of information.

For example you could find all the people called Smith, and then find all the people called Smith who live in London, and then find all the men called Smith, who earn more than £15,000 a year and are married, and so on.

Special care unit

Q Is there any special care I should take of my (hard, floppy and compact) disks?

A Yes, there are a indeed number of pointers that you should follow that will prolong the life of your disks:

1) Avoid liquids; tea, coffee etc.

2) Avoid smoke; even cigarette smoke as this leaves residue that is incredibly harmful to CDs and hard disks.

3) Avoid magnets; you will find these in hi-fis and telephones. Magentic fields interfere horribly with the way in which data is stored on disks.

4) Avoid excessive heat or cold.

5) Avoid pressing to hard on the disk labels when writing details on the cover. This can damage the fragile medium on the inside.

6) Don't open a disk, especially hard disks.

WHAT NOW?

Q How do I get the most out of this Questions and Answers Special?

A Easy, we have taken the most commonly asked questions (those that are put to us at shows such as the Future Entertainment Show, or are written in to our parent magazine ***Amiga Format***) relating to the most popular Amiga activties. These question range in complexity from the beginners up to the more advanced. All you need to do is to turn to the section that interests you the most, and dip into the questions. The more you learn about the Amiga, the more you will get out of this Special. And what's more, the Q&As will still be relevant in a year's time, so you can keep going back to them.

storing the Boot information that enables the Amiga to request you to insert a disk.

RPG: Role Playing Game. A genre of game that has transferred from the board over to the Amiga. You will also see it termed as Adventure gaming.

RTF: Rich Text Format. The text equivalent of IFF (Interchange File Format). Whereas IFF enables a variety of pictures, graphics and sound to be exchanged into different programs, RTF does the same for text.

SCSI: Small Computer Systems Interface. Pronounced 'scuzzy', this is a device that enables you to connect hardware to your Amiga.

TLA: Three Letter Acronym. You'll find a hell of a lot of these the deeper you get into computing with your Amiga.

WIMP: Window Icon Menu Pointer. A system developed at Xerox's Palo Alto research laboratories in the 70s. This replaced the previous means of communicating with a computer by typing in language commands with a system of using an on-screen pointer to select icons and menus to enable you to carry out given tasks.

WYSIWYG: What You See Is What You Get. This describes a program in which the screen display matches the printed output.

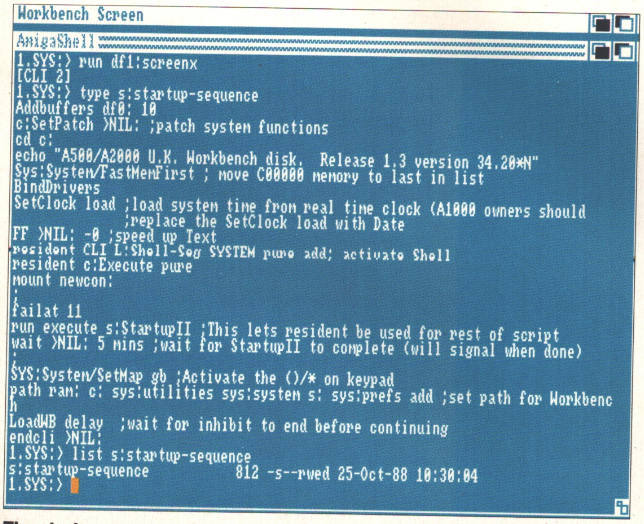
DO IT WITH DOS

Join us on a voyage of DOScovery as we answer your questions and queries from the world of AmigaDOS

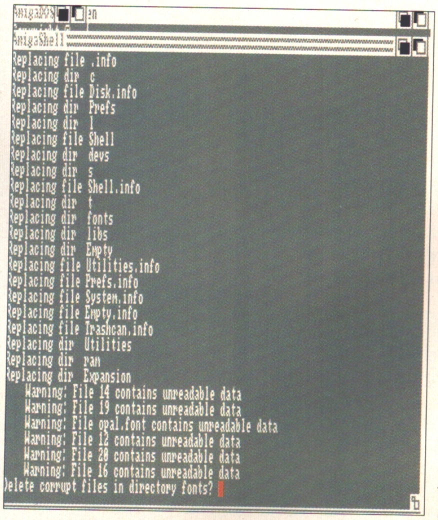
Call the Diskdoctor

Q I ran a corrupt disk through *Diskdoctor* to save what information I could. At first one file was corrupt, but the problem seemed to spread until *Diskdoctor* was finding two hard errors on the upper surfaces of cylinders 40 and 45, key 838 was proclaimed to be already set and the disk was renamed Lazarus. What's going on?

A Cylinder 40 contains the disk's root track, with which every file and directory on the disk is linked. If this cylinder goes wrong, things are looking bad. *Diskdoctor* does its best to look at all the files and re-establish these links, and so reconstitute the root track. Amongst other things the root track contains the disk's name, and if this information is lost then *Diskdoctor* renames the disk as Lazarus.



The startup-sequence is itself a script file – a collection of AmigaDOS commands – that is run at startup without need for the Execute command.



Diskdoctor has found a few problems. Here it is trying to restore files to the Workbench disk.

The message about the key being already set is generated by an AmigaDOS program called the *Disk Validator*. It checks something known as the disk's 'bitmap', which contains information about which blocks on the disk are free and which are full, in order to find where new information is being written. The error message is generated because the bitmap is saying the block has already been used, whereas the *Disk Validator* expects it to be free.

Unfortunately, it sounds as if your information is irretrievable. It's fair to say that *Diskdoctor* is rarely of any use, and has, in fact, been removed from the latest version of Workbench.

Getting RADical

Q I have been trying to make a bootable, recoverable RAM disk, using the RAD device. I thought that when I reset my Amiga after having set up the device it should boot from RAD rather than needing a floppy disk. Is this so? Why, in my case, do I get the ordinary Insert Disk prompt?

A You're right, it should work, and the reason it doesn't is because of a bug in version 1.3 of Kickstart that manifests itself on Amigas with 1Mb of chip memory. Fortunately, there is a way around it. Commodore's `SetPatch` command, which is supplied on your Workbench disk, is designed to correct such bugs. Everything should be OK if you place this command somewhere in your startup-sequence (found in the S directory of your boot disk), with the following syntax:

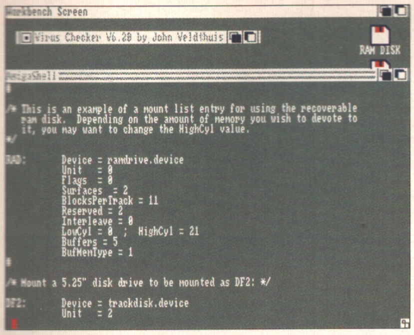
```
SetPatch >NIL: -R
```

Virus checker

Q When I run my virus checker on some of my disks, it gives an `unknown bootblock` error. Should I erase these disks?

A Not necessarily. The bootblock is a part of the floppy disk essential to AmigaDOS. It is also one of the most common places in which a virus can hide itself, which is the reason why just about every virus checker will examine a disk's bootblock. You might think that if a virus checker discovers a non-standard bootblock on a disk then it is infected with a virus, but the situation is complicated by the existence of non-standard, but nevertheless harmless, bootblocks. In particular, games publishers will use their own bootblocks to aid in protecting their games from unlawful copying. Demo coders are also fond of bootblocks that print clever messages while the disk is loading.

It's always best to think twice before letting a virus checker replace the bootblock of a disk. If it's a game or a demo, then it's almost certainly meant to be that way. If it's anything else, then there's a good chance it has been infected with a virus and you should let your checker proceed.



RAD is a recoverable RAM drive. Here is its entry in the Mountlist file held in the DEVs: directory.

Data damage

Q **Whenever I try to copy disks using the Duplicate Selection from the Workbench menu the machine stops with the message `Reading 0, 79 to go`. Que Pasa?**

A A virus known as the Lamer Exterminator II has infected one or more of your disks. This is a pain, and can damage your data. Get yourself a good virus killer (just about all will recognise and eliminate the virus you have), such as *Virus Checker*, and feed all of your disks in turn to it. Programs such as *Virus Checker* are available from all good Public Domain libraries.

Close the window

Q **I have added a line in my startup-sequence to run a virus checker that I want to be active all the time my Amiga is switched on. It works fine, but once the Amiga has finished booting I'm left with an AmigaDOS window that I can shrink but which won't close. Can you tell me how to get rid of this window?**

A The problem comes about because the *Virus Killer*, being run from the Shell, has an input/output handle attached to the Shell window. The window won't close until all programs associated with it, in this case the virus killer, have been terminated. The virus killer doesn't need a Shell input/output handle, since it interfaces with the user via Intuition, so the solution is to disable the handle when the program is run. This is done by redirecting the program's input and output to the NIL: device. If you were running *Kill-Da-Virus*, for instance, then the modified line in your startup-sequence would look as follows:

```
run <NIL: >NIL: Kill-Da-Virus
```

Speak-easy

Q **I've tried using the AmigaDOS `Say` command to get my Amiga to speak, but it always comes out sounding like a robot. According to the manual I should be able to change the pitch and speed at which it speaks, but I've had no such luck. Can you help me?**

A It is possible to vary the speed and pitch of the voice. We can only conclude that you are making a mistake when typing in the instructions, causing the Amiga to ignore them. As well as the text to be spoken, you can use a number of switches to control the voice. These switches consist of a dash followed by a single letter. The switches `-m`, `-f` and `-r` decide whether the voice will be that of a man, woman or robot respectively. The switch `-p` followed by a number governs the pitch of the voice; while `-s` followed by a number governs the speed. For example:

```
say -m -p80 "here is some text"
```

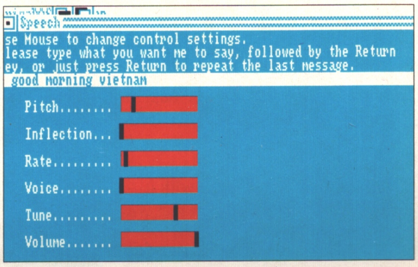
should sound quite different from:

```
say -f -p160 "and here is some more in a
different voice"
```

Furthermore, if you want the Amiga to speak a text file rather than some text in quotes, you must include the `-x` switch, like so:

```
say -f -p160 -x My_Disk:My_File
```

If you have AmigaBASIC you fill find a program in the Examples drawer that enables you carry out the same operation with a graphical interface.



This AmigaBASIC program in the Examples drawer has a graphical interface for speech facilities.

Follow the script

Q **I have collected together a number of AmigaDOS commands into a script file. I can run it using the Execute command, but I'd like to be able to just type in its filename to make the script file run. I understand that I have to set the file's Script Flag. Where will I find this and how do I do it?**

A The file's Script Flag is stored, with a number of other flags, with the file itself. It can be set or reset with the AmigaDOS `Protect` command. Follow this with the `+s` option to set the Script Flag. If your file is called `My_File` and is on a disk called `My_Disk`, to make it behave as an executable script, you would type the following in at the Shell prompt:

```
protect My_Disk:My_File +s
```

Now, whenever you type `My_File` the script will be executed, assuming AmigaDOS can find it within its search path.

News from the font

Q **I'm having problems with the *Fountain* program supplied with Workbench 2. It's supposed to enable me to use Compugraphic fonts, but whenever I try to use it stops with the error message `Cannot open diskfont.library V37`. What can I do?**

A There's a very good reason for this happening, but whoever it is at Commodore who knows it isn't telling. The problem is that the version of the Diskfont.library program on your Workbench disk is not sophisticated enough for *Fountain*'s purposes. Fortunately, the correct version is included on your Fonts disk.

The easiest solution is to copy this later version of the program over to your Workbench disk. To do so, follow this procedure: use the Show... All menu option to reveal all the files on both your Workbench and Fonts disks. A drawer called Libs will be revealed on each. Now open the Libs drawer on the Fonts disk and drag the Diskfont.library icon that you find there into the Libs drawer on your Workbench disk. Job done! Reboot your Amiga and you can use *Fountain*.

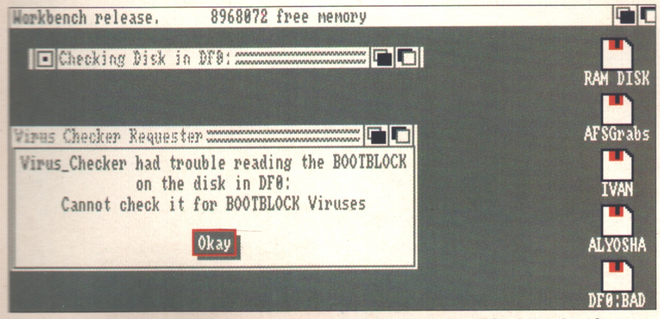
Directory enquiries

Q **Using Shell, how do I get a directory of any floppy disk other than my Workbench disk? Whenever I try do so, the Amiga tells me to insert the Workbench disk and then gives me a directory of that. Help!**

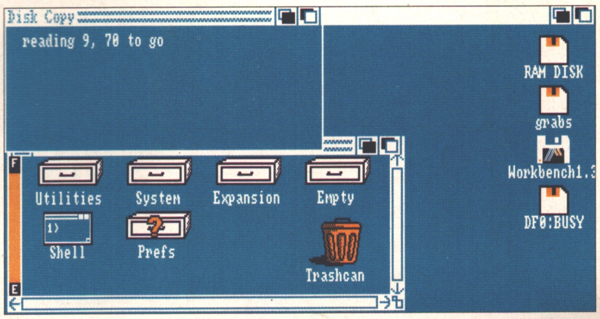
A The reason this happens is because the `Dir` command is stored in the C directory of the Workbench disk. Whenever you type in the command, you are asked to insert the Workbench disk so that the command can be loaded into memory before it is run.

Once it is loaded, if you've typed either `dir` or

Continued page 18



Here Virus Checker has come up against an unknown bootblock, and so it cannot be certain about whether or not the disk contains a virus.



This is how the Diskcopy from the Workbench should work, barring intervention from the Lamer Exterminator II virus.

dir df0: then you will be given a directory of the disk currently in the drive – that is, the Workbench disk. There are several ways around this:

a) You can copy the dir command into the RAM disk. This is one of the first places AmigaDOS looks for a command, so once dir is typed, the command will be retrieved from the RAM disk and you won't be asked to insert the Workbench disk. Copy the dir command into the RAM disk using the following line from the Shell:

```
copy c:dir ram:
```

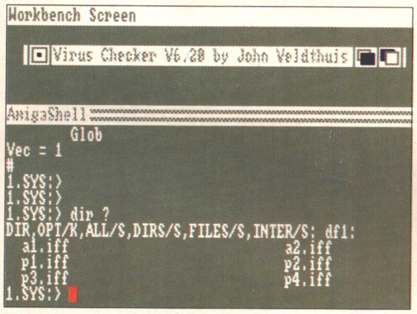
b) Alternatively, you can ask for a directory of a particular disk if you know its name. If, for instance, you wanted the directory of a disk called 'My_Disk', you would type:

```
dir My_Disk:
```

c) The third option is to type the following:

```
dir ?
```

The question mark is a request from you asking AmigaDOS what kind of parameters the dir command expects. In order for the Amiga to answer, it must first load dir so it asks for the Workbench disk. Once the command is loaded the Command Template is printed. At this point, you can take the Workbench disk out and put your own disk in. Press [RETURN] and you'll be given a directory of that disk.



Following the command with a question mark gives you a pause when you can swap disks.

Resident commands

Q While trying to customise my Workbench disk I removed a number of programs that I don't use.

In addition, I crunched a number of others with *Program Cruncher*, a Public Domain program.

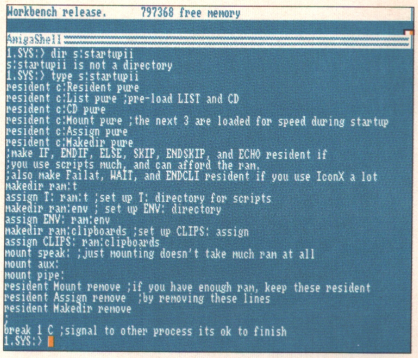
When I came to reboot with this disk, I got a pure bit not set **message when the Shell window opened. Is this important, and if so how do I correct it?**

A The error is being generated by the Resident command, which is used during the startup-sequence (a collection of AmigaDOS commands executed every time the Amiga is booted).

What Resident does is to place other commands into memory so that they can be executed more quickly.

Resident is used in the startup-sequence to place several commands in memory, so that you don't have to wait around too long before the machine is ready to use.

Only certain (very defind) kinds of commands can be made Resident. They must be what are called Pure, or Re-executable and Re-entrant commands. Once you have compacted your commands with *Program Cruncher* they are no longer Pure. The solution is to replace your compacted AmigaDOS commands with their ordinary equivalents. In particular, the files Shell-Seg, Execute, Mount, MakeDir and Assign must not be compacted.



Making commands Resident during the startup-sequence increases the boot-up speed.

Play the game

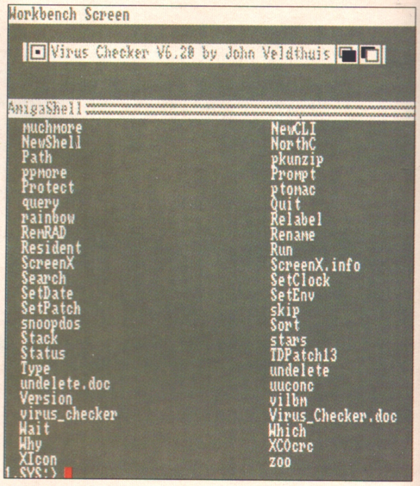
Q How can I transfer games from floppy disks to my hard disk and give them icons so that I can run them just by double clicking on them.

A In general, you can't. Most commercially written games have Hidden files that don't show up as icons. And just about every game includes copy protection that makes it impossible to transfer the relevant files over to your hard disk.

In short, if the game will work on your hard disk, it will come with it specialised installation script that will do the job for you.

Make a date

Q How do I modify the startup-sequences of program disks such as *Deluxe Paint* so that they ask the user for the correct time and date every time they are used for a boot?

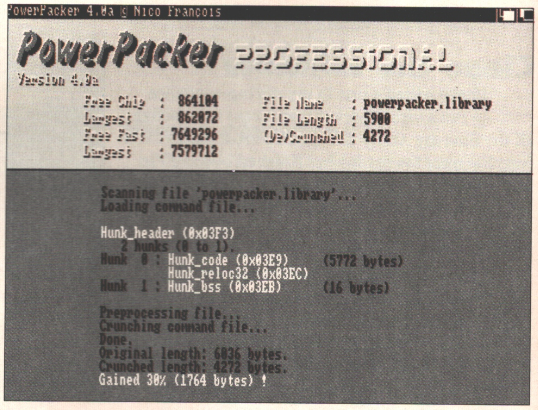


Here are the commands held in the C directory. Most won't show as icons on a Workbench screen.

A Easy, just put the line:

```
Date ?
```

somewhere in the startup-sequence. Once the user types in the date and time, it will be remembered until a reset.



PowerPacker compact programs to a smaller size. They will automatically de-compact when it runs

By making this very simple addition to the startup-sequence you can ensure that your Amiga asks the user for the current time and date every time the Amiga is booted.

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DOING WELL WITH SHELL

What is Shell? Where is is, and what does it do? You need to know the answers to these questions, and we've got them

Be sure of Shell

Q What is the Shell? What can it do?

A To all intents and purposes, Shell is simply an alternative to Workbench. But instead of clicking on icons and selecting pull down menus, Shell is operated by typing commands via the keyboard. Although Shell is very different in its approach, it is capable of performing more complicated tasks than is possible using Workbench.

Take the process of displaying the contents of a disk. From Workbench, you would double click on the disk's icon and a window would appear containing icons for most of the files and directories on the disk. Using Shell, you'd get the same results (but in a different format) by typing the command `Dir`.

So why use Shell? Well, the answer to that is that Workbench is designed to make using the Amiga as easy as possible, but Shell is the domain of the power user. As a result, there are many operations that can be carried out from Shell that just aren't possible with Workbench.

For example, could you copy every file starting with the letter 'T' in all directories to a sub-directory called Backup and automatically append a file extension to all those files with Workbench? No. But you could with Shell.

How to access Shell

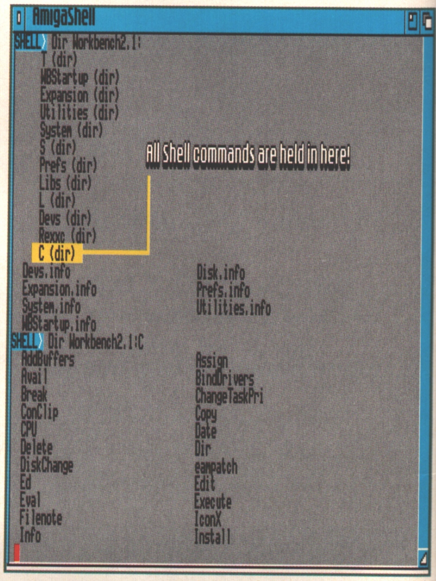
Q I've heard great things about Shell. How can I access it?

A Accessing Shell is easy. Just turn on your Amiga with the Workbench disk in the internal drive and then wait for Workbench to load. Once all disk activity has ceased, double click on the Workbench disk icon and then double click again on an icon called Shell. After a couple of seconds' disk access, a Shell window should appear on the Workbench screen complete with a little `1.SYS>` Shell prompt. This prompt is Shell's way of saying 'OK, what do you want me to do?'. If you now type something into Shell and press return, Shell will attempt to carry out the command that you typed.

Oh Shell!

Q Why is it that when I load Shell, remove the Workbench disk and then type a command, Shell asks me to re-insert my Workbench disk? Where does the Amiga store its shell commands? Are they on the Workbench disk?

A Very few of the commands that you can use in Shell are actually built into the Amiga. Instead, to enable Commodore to update them more easily



The Shell's many commands are held in a directory called C on your Workbench disk.

they are held on your Workbench disk in a directory called C (C for Commands).

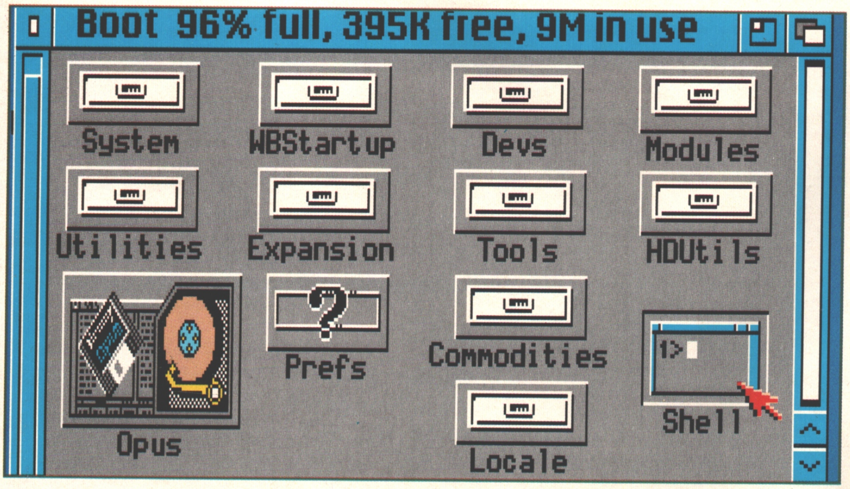
All the various Shell commands that are held in this directory are essentially programs in their own right. When you enter a Shell command such as `Dir`, what you are actually doing is running a program called `Dir` held on the Workbench disk. If you remove the Workbench disk, Shell won't be able to access its commands, which explains why it gets so stroppy when you enter a command with no Workbench disk in the drive.

Path to the trees

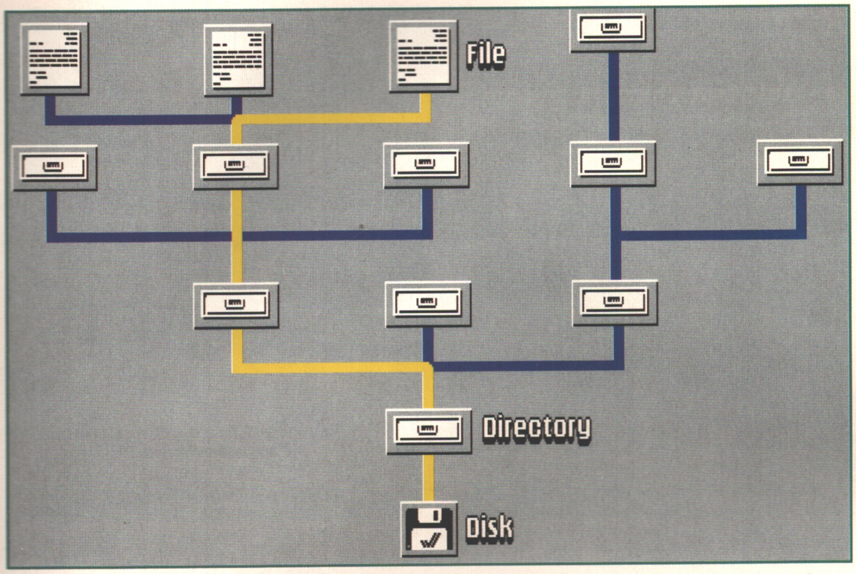
Q What is a directory tree and a path? How do you move around the structure of a disk?

A To understand Shell, you must have a good knowledge of disks and the way they are structured. All disks (both floppy and hard) contain nothing more than two basic elements – directories and files. Directories are a bit like pigeon holes that are used to organise information held on a disk. Without the use of directories, your disks would be very cluttered indeed.

Before you start saving data to a disk, its structure is very simple indeed. You might think that it is completely empty, but it does contain one directory – the root directory. Because the disk itself is essen-



All you have to do to access Shell is switch on your Amiga with the Workbench disk in the drive,wait for Workbench to load, double click on the Workbench icon and then double click on this Shell icon.



The structure of a disk is best thought of as a tree with the disk at the root and directories branching out into files. Understanding the structure of a disk makes using Sell much easier.

tially a pigeon hole for data, AmigaDOS treats a disk in exactly the same way as it treats directories. So, adding additional directories is a bit like having disks inside disks. What's more, you can create directories inside directories which themselves are inside directories.

Embedding directories in other directories creates what is known as a directory structure. Because the structure of all disks starts with a single root directory from which all directories sprout, the structure of a disk can best be viewed by displaying it as a family tree structure.

Paths provide the Amiga with a method of pinpointing particular areas within a disk's structure. Say, for example, you had a picture file stored inside a directory called Pictures that itself was held within a directory called Files, in order for the Amiga to be able to find this file, we need to tell it exactly where within the directory structure the file can be found. The path for this file would therefore be `DF0:Files/Pictures` (presuming that the disk is in the internal drive).

Moving around the structure of a disk is achieved using the AmigaDOS CD command (short for Change Directory). The CD command sets the current directory to any directory that you specify. Using the earlier example, you could therefore use the CD command to go straight to your picture by entering the line `CD DF0:Files/Pictures`.

Resident commands

Q Is it possible to make certain Shell commands, such as Dir, Type and Delete, resident so that I don't have to insert my Workbench disk every time I use them?

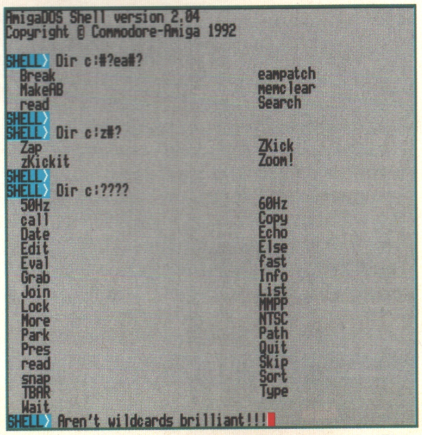
A There are several ways of doing this, but you must bear in mind that the more commands you install inside the memory of your Amiga, the less memory you've got left for running programs.

It is therefore not a good idea to make every Shell command resident. A much better bet is to install just those commands that you use a lot. You don't really need to install commands such as AddBuffers and Mount so keep these on your Workbench disk.

Right then, here's method A:

Copy all the Shell commands that you want to make resident to the RAM disk using the Copy command and then enter the command `Path RAM: Add` once all the commands have been copied. Now whenever you type a Shell command, Shell will look for the command in the RAM disk before attempting to load it from the Workbench C directory.

Method B offers a more recent solution. Now that AmigaDOS has been brought more up to date, it provides a command that is designed specifically for the task of making Shell commands resident. And, surprise, surprise, It's called Resident. Simply type `Resident c:<command>` where <command> is the name of the Shell command that you'd like to install and press [RETURN]. If you get an error message informing you that the command can't be made resident, then enter the following – `Protect c:<command> +p`. If you now try to make the command resident again, it should work.



Wildcards enable you to select more than one file simply by passing the Shell a selection criteria.

Really wild

Q What are wildcards?

A Wildcards can save you a lot of extra typing. For example, if you wanted to delete only certain files within a given directory and you did this manually, you'd have to type the filename of every file you wished to delete. In certain circumstances though, it's possible to use wildcards instead. Let's say that you wanted to delete all the files that ended with `.bak`. Because we have now established a selection criteria, there's no need to tell AmigaDOS any more – all you do is to pass this selection criteria to it in the form of a wildcard.

Wildcards enable you to blank out certain areas of a filename so that they are ignored by AmigaDOS. Instead of trying to match the filename precisely, AmigaDOS will simply look for a file that matches the selection criteria that you've passed. If several files fit this criteria, then the operation will be performed on all of these files.

AmigaDOS uses two characters as wildcard – '?' and '#?'. Roughly translated, these two characters stand for 'any one character' and 'any number of characters' respectively. For example, specifying the filename `A#?A` would pick out filenames such as Amiga (don't forget that AmigaDOS isn't case sensitive!), Amooooga and even A123456789A.

Neat to delete

Q Why is it that when I try to delete certain files, the Amiga refuses to do so even when the disk is write enabled?

A The reason why you can't delete these files is because they have been protected from deletion. Any file, and indeed any directory, can be protected against accidental deletion by clearing its delete protection bit using the AmigaDOS Protect command. To unprotect a file, simply enter `Protect <filename> +d` and to protect it again, type `Protect <filename> -d`.

Using an alias

Q What does it mean when an alias is attached to a file?

A An alias enables you to refer to a Shell command under another name without having to actually rename the command itself. If you wanted to refer to Shell commands by their Unix operating system equivalents `ls` instead of `Dir`, `rm` instead of Delete, for example), you could use the alias to do it. Simply enter `alias` followed by the name that you'd like to use and then the filename of the Shell command that it is to be associated with and AmigaDOS does the rest. As an experiment, try entering the line `Alias ls c:Dir` and then type `ls` – you should get a listing of the current directory.

Logical question

Q What are logical assignments and logical devices? Are they the same thing?

A Logical assignments and logical devices are essentially the same thing. They enable you to refer to a given directory on a disk in the same way

Continued on page 22

as you would refer to a device such as a disk drive. This means that you could, for example, substitute Adpro for DF0, if you wanted to access your *Art Department Professional* program.What's more, by assigning a logical device to a heavily embedded directory, you don't need to remember its full pathname in order to access it.

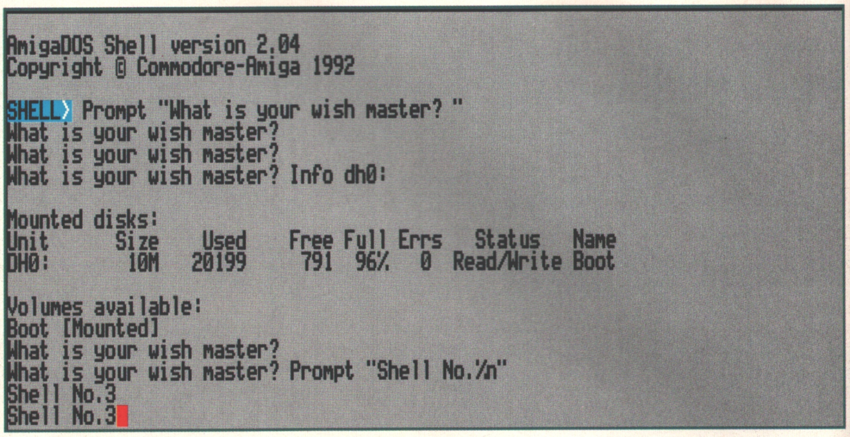
For example, say you had a picture file called MyPic that was stored in a directory called Pictures that itself was inside a directory called Files on a disk called Fred:. Under normal circumstances, you'd have to enter the full pathname if you wanted to access it:

`FRED:Files/Pictures/MyPic.`

By assigning a logical device to that directory using the command:

`Assign MyDevice: FRED:Files/Pictures,`

you can then access your picture regardless of the current directory setting: `MyDevice:MyPic.`



Make your Amiga as humble as you like by changing the Shell Prompt to anything you so desire! You can also use the prompt command to display your current directory setting

The path way

Q **What does the Path command do?**

A The Path command is used to create search paths that are used by AmigaDOS to find commands held on disk.

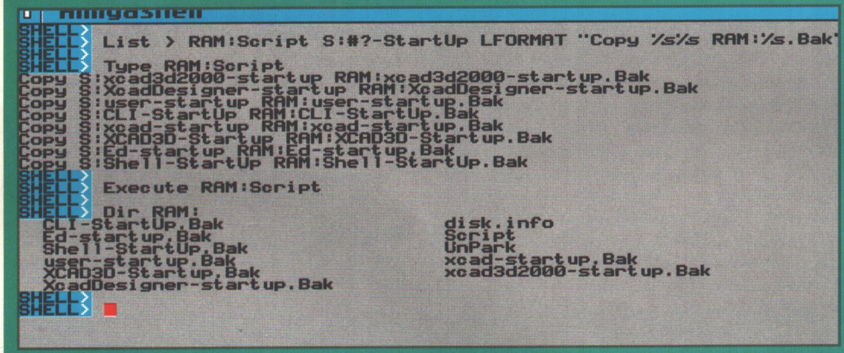
By default, AmigaDOS looks in the Workbench C directory and the current directory for the program files for any commands that you enter. If you want it to look in another directory as well, you can tell it to do this by using the Path command. The syntax is simple enough – `Path <pathname> add`. So, for example, entering `Path RAM: add` would tell AmigaDOS to look in the RAM disk when trying to locate files.

Prompt action

Q **Can you tell me how I can change the AmigaDOS Prompt so that it displays the current directory?**

A The Prompt command accepts two special strings that can be used to display not only the current task number, but also the current directory setting. If you're running AmigaDOS 2, then the prompt should already be set to display both. For your reference however, simply include a `%N` for the Shell number and a `%S` for the current directory within the Shell prompt. For example `Prompt "%n%s> "` would display both the Shell number and current directory followed by a greater than symbol and a single space.

The Power Of The List



The Shell List command is one of the most underrated commands in the entire Shell repertoire. It offers some very powerful and incredibly useful script authoring facilities.

Q **I need to copy a selection of files from one disk to another. I know that the Copy command has wildcard support, but my problem is that I also want to append an extension on to the end of each file copied. Is there a way of doing this without having to copy each file individually?**

A **Ah! Now you've discovered the one failing of wildcards – because a command that is passed a wildcard pattern can process more than one file, AmigaDOS only enables you to carry out limited operations on these files. Therefore, if you want to perform the operation you've described then you need to resort to a far craftier solution that involves script files .**

One of the most underrated commands in the entire Shell command set is List. Most of us use it for nothing more than displaying status information about files. However, it is also capable of being used to automatically generate script files using its powerful LFormat parameter.

LFormat enables you to control the format in which the information that List produces is displayed and where it is displayed. What's more, by adding in additional text and then channelling the output from List using output redirection (or even the PIPE: device), we can even get List to write entire script files.

The format of information produced by List is controlled by passing it a string containing control characters and any additional text that you might like to add. These control characters tell List where in the string the various bits of information should be placed. In the current release, List only enables you to place filenames and pathnames in the string.

These two bits of information are inserted by placing either a '%s' (for the filename only) or a '%s%s' (for both the pathname and filename) into the string. Here's an example of List in action.

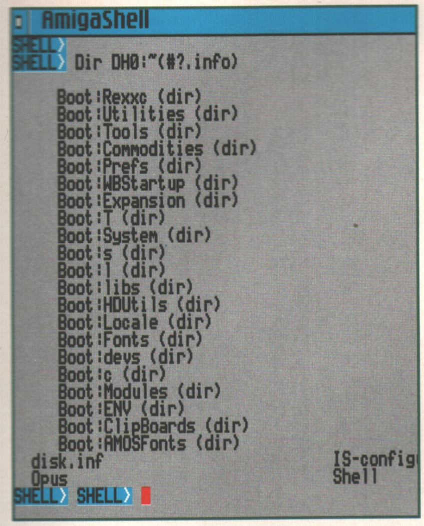
```
1.> List > RAM:Script S:#? LFormat
    "Copy %s%s RAM:%s.bak"
```

The above example starts by redirecting all output into a file called Script in the RAM disk. It then reads in all files within the S: directory and writes each individually to file in the format Copy <pathname + filename> RAM:<filename>.bak.

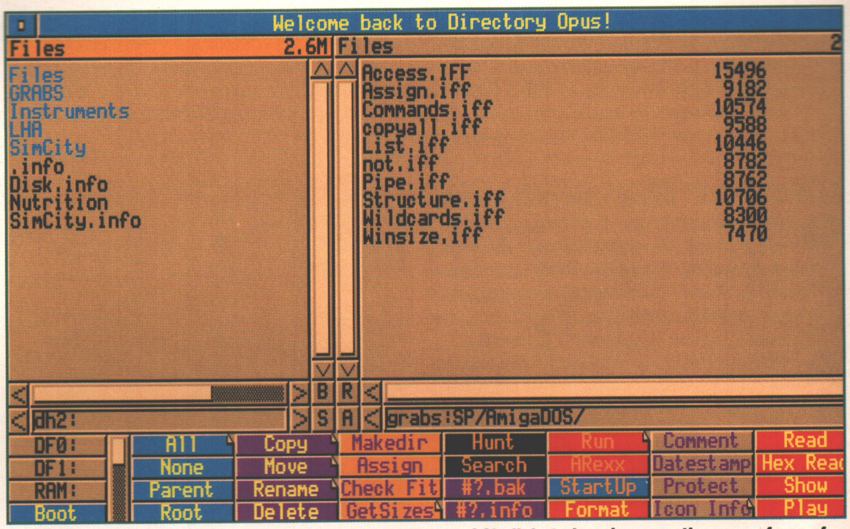
If, for example, you had two files in the S: directory one called Fred and the other called Wilma, the above command would produce a script file containing the following lines (simply enter Type RAM:Script to view the script).

```
Copy S:Fred RAM:Fred.bak
Copy S:Wilma RAM:Wilma.bak
```

What we now have is a script file that can be run using the AmigaDOS Execute command. You would therefore type Execute RAM:Script. And, after a couple of seconds disk access, you should find your files have been copied complete with the extension that you required.



The '~' symbol can be used to effectively reverse the results of a selection criteria.



Using Directory Opus enables you to harness the power of Shell, but also gives you the ease of use of Workbench. Instead of having to type in commands you can click on gadgets.

Cancel assignments

Q Is it possible to cancel an assignment once it has been made?

A It certainly is. If you want to remove a logical assignment called AMIGA: all you have to do is to enter `Assign AMIGA:`

Window size

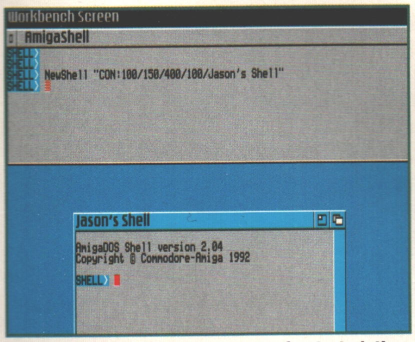
Q When I create a new Shell using the NewShell command, is it possible to control the dimensions of the Shell's window?

A Although many Amiga users don't realise it, the NewShell command does actually supply a couple of extra parameter options that can be used to customise how it performs.

In the case of the dimensions of the window that the command creates, all you need to do is to pass it a string containing the console device name (CON: for 2.04+ and NEWCON: for 1.3) followed by your chosen dimensions and even a string of text that you'd like used as the window title. Typing:

```
NewShell"CON:100/100/400/100/Jason's
     Shell"
```

would open a new Shell window called Jason's Shell at screen position 100 by 100 pixels at a size of 400 by 100 pixels.



If the size of your shell leaves you frustrated, then we show you how to enlarge it with ease.

File be there

Q When I list the contents of a directory that contains files with icons attached, the listing I get also contains all the icon files. Is there a way of only listing files?

A Under AmigaDOS version 2.04 or greater, a new NOT operation was included to enable you to effectively reverse the result of a selection criteria. The symbol you want is '~' and is used to tell AmigaDOS to work upon all files that don't meet a selection criteria. For example, if you want to display just files and directories and not their icons using the Dir command, all you'd have to type is `Dir ~(#?.info)`. Note the use of the brackets to separate the NOT operation from the wildcards.

Follow the script

Q Is it possible to tell AmigaDOS to execute a script every time Shell is opened without having to do all the work myself?

A Every time you open a new Shell window either by double clicking on the Shell icon from Workbench or by typing NewShell, AmigaDOS looks for and attempts to execute a script file called S:Shell-StartUp that is used to configure the Shell. If you want to create your own customised Shell, all you need to do is to edit this file using a standard text editor such as the AmigaDOS Ed editor.

Make it easy

Q I've learnt enough about Shell to realise that it is considerably more powerful than Workbench, but I have to admit that I miss the Workbench's ease of use. Is there a utility available that gives you the power of Shell with the Workbench's ease of use?

A The program that you need is a directory utility such as INOVAtronics' brilliant *Directory Opus 4*. This enables you to do just about everything that you can do from Shell but without having to type in long-winded commands. Instead you just click on the gadget associated with the operation you want to perform. This makes mastering Shell a doddle. Look out too for PD *Opus* clones such as *SID 2*, *ClickDOS* and *DirMaster*

On the Run

Q What's so special about the Run command?

A Whenever you run a program from the Shell, it can no longer be used until the program you launched stops running. This can be a real pain if you're using a program that you'd like to have running continuously (*Directory Opus*, for example). AmigaDOS has the answer to this problem in the shape of the Run command that is used to run programs from the Shell without locking it up. This means you can continue working away even when the program you have launched is still running.

What's the CLI

Q What's the difference between the CLI and Shell?

A Strictly speaking, there's no difference between the CLI (Command Line Interface) and the Shell. However, because Commodore has changed Shell so dramatically over the years, most techies no longer refer to the Shell as the CLI simply because the original CLI had no command line history or editing facilities.

Icon do that

Q I have a directory that is full of pictures, none of which have their own icons. Is there a way of attaching a real icon (using Workbench's Show All option doesn't count because it doesn't actually create real icons) to all these files?

A There certainly is, but first you'll need an icon of the appropriate type that can be used as a source icon for the rest of your pictures (a standard *DPaint* picture icon will do the job). Once again,

Continued on page 24

we'll have to resort to the List command that we covered before. Here's the lines that you'd need to get the job done.

```
1.> List > RAM:Script #? LFORMAT "Copy
    MyPic.info %s.info"
1.> Execute RAM:Script
```

Root of the problem

Q When I attempt to copy the contents of a disk on to my hard disk, only the files in the root directory are copied. If the disk contains sub-directories, these are ignored. Is there a way of copying files and directories simultaneously?

A What you need to do is to specify the Copy command's ALL parameter that, not surprisingly, tells Copy to transfer everything on the disk and not just the files in a named directory. If you wanted to copy all the files from a disk in DF0: to DH0: (your hard drive), you would therefore enter:

```
Copy DF0:#? all DH0:.
```

Word power

Q I've constructed my own disk magazine that displays text using the AmigaDOS Echo command during boot up. Unfortunately, this is rather slow. Is there a faster way of doing the same job?

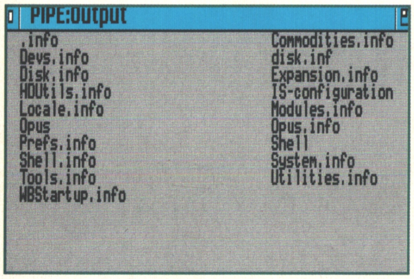
A Echo is OK for displaying single lines of text within a script file, but you'd be much better off writing all the text that you'd like to display in a text editor (such as Ed) and then using the Type command to display it. This would not only make your script look more professional, but it would also run much faster.

Pipe up

Q What are the PIPE:, AUX: and SPEAK: handlers? What do they do and how can I use them?

A Right, let's take a look at each of the three handlers individually.

PIPE: The Pipe device provides an efficient way of channelling the output from one program into another program. Pipe: effectively works as a virtual disk drive that can be used to store the output from one program and then send it off to another program. The best way of demonstrating the PIPE: handler is to try it for yourself. Start by opening up a Shell and then type `More PIPE:MyPipe`. The title of the Shell window should then change to PIPE:MyPipe but the window itself should still be blank. Right, now open up a second Shell window and enter `Dir > PIPE:MyPipe SYS: Files` and



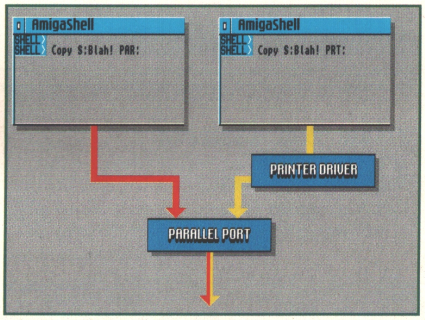
The output from one program can beefed to another using the Shell's powerful PIPE: handler.

press [RETURN]. Under normal circumstances, the output from the Dir command should have been displayed in the same window in which you entered the command, but because we've PIPE'd it, it should now be displayed in our MORE'd window.

AUX: To be perfectly honest, the AUX: handler is a waste of disk space as far as most users are concerned. It was originally designed to enable users to connect up and use a remote terminal with the Amiga, giving limited multi-user capabilities to the Amiga. Unless you've got a spare terminal lying around, there's no way of using this facility.

SPEAK: The Speak handler is a great little facility that enables you to channel the output from any Shell command to the Amiga's speech synthesiser. So, instead of displaying the output from a program as text within your Shell window, the Amiga will read the output to you. For an example, enter:

```
Copy S:StartUp-Sequence SPEAK:.
```



Sending information to a printer via the PAR: device may cause it to bypass the printer driver.

Small print

Q What's the difference between printing a file using the PAR: device rather than the PRT: device? Surely they are both the same as they both send information to my printer.

A Although both usually send information to the same port, the PRT: device only sends information to the parallel port if you have specified that you have a parallel printer using the Workbench Preferences program 'Printer'. What's more, sending information via PRT: runs it through the printer driver before it is sent out to the parallel port. So, if you send a text file directly to your printer using the PAR: device, the printer driver will be ignored and you may encounter protocol problems. Unless you aren't writing information to your printer, stick with PRT:.

StartUp-Sequence

Q What is the StartUp-Sequence?

A The StartUp-Sequence is an AmigaDOS script that lives in the S directory that is executed every time you boot up your Amiga. Most bootable disks have StartUp-Sequences, not just the Workbench. The job of the StartUp-Sequence is to tell AmigaDOS how to load the disk that is being booted. Without a StartUp-Sequence, most disks would do nothing more than drop down into the initial Shell window that is opened when your Amiga first starts to boot – the Workbench disk, wouldn't even load the Workbench program without a StartUp-Sequence.

What is RAD

Q What's the difference between RAM: and RAD:?

A Both RAM: and RAD: are effectively virtual disk drives that live inside the memory of your Amiga. But whereas the contents of RAM: are lost when you reboot, RAD: retains its contents until you either switch off your machine, load a game (most games trash RAD:) or kill it yourself.

Boot ploys

Q When I mount the RAD: device I can no longer boot from my hard disk. Is there a way of removing the recoverable RAM disk?

A Just use the AmigaDOS RemRad command.

File it

Q When I use certain programs (*ProPage*, for example), they ask me to `insert volume xx in drive x` even though the files that the program wants are on my hard drive. How can I tell the program where these files can be found?

A Problems of this kind can easily be solved by assigning the disk that the program asks for to the directory that contains the files it needs using the Assign command. If, for example, your favourite DTP program asked for a disk called OutlineFonts, you could redirect it to a directory called MyFonts using the line:

```
Assign OutlineFonts: DH0:MyFonts.
```

It's best to add this to your startup-sequence. Now every time the program attempts to read data from OutlineFonts, it will look in the directory `MyFonts`.

See Shell

Q Can I drop straight down into Shell instead of having to wait for Workbench to load?

A Yep, just press [CTRL] 'D'.

Write the script

Q What is a script file?

A A script file is best thought of as a program that you write yourself that uses Shell commands as its instructions. It's a bit like programming in BASIC with each line containing a command that performs a specific instruction. AmigaDOS scripts enable you to carry out complex tasks simply by entering a single command.

For example, if you wanted to transfer several important files from a number of different directories to disk every evening, instead of copying each file individually, you could write a script file that contained all the necessary copy commands. Then, by using the Execute command to run your script, the files would be transferred in one go.

THE WONDERS OF WORKBENCH

If you've ever wondered about some of the less obvious functions of Workbench, then you're in the right place. Read on as we de-mystify the mysteries of ToolTypes, IntelliFont, Locale and much more...

Altering the colours of your Workbench screen couldn't be easier – just use the colour wheel.

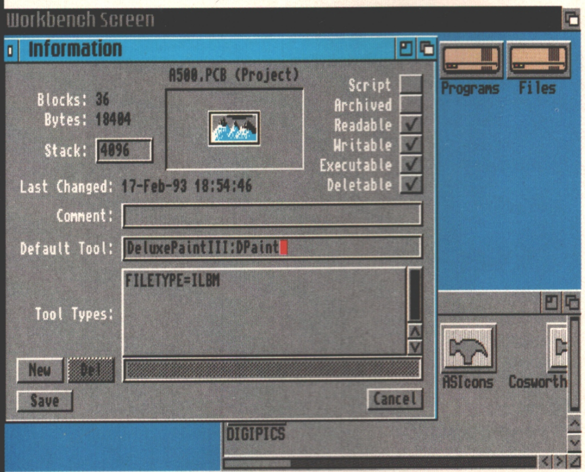
Modern Icon-ography

Q **When I run certain programs, they create their own little icons on the Workbench screen. When I click on one of these icons, the program that created it is displayed. What else can these icons do?**

A The icons that you refer to aren't icons in the proper sense of the word, but are special icons called AppIcons (short for Application Icons) that are created by an application when it is first run. However, not all applications create AppIcons. The reason for this is that AppIcons are a relatively new addition to the Workbench environment, developers have to specifically code AppIcon support into their programs in order for an AppIcon to be displayed.

Not your default

Q **When I click on some icons, I get an error message informing me that `'this icon has no default tool'`. What does this mean?**



Attaching or even altering the default tool used by an icon is simple using the Workbench Information option – see 'Not your default'.

A A default tool is a program or utility that is used to create either the file or – as is more common – a stand-alone viewer program that performs whatever operation is needed to view the contents of the datafile. If the datafile is a *SoundTracker* module for example, then the default tool for that particular file would be a module playing utility such as *MEDPlayer*.

If you have some files that produce this error message when you run them, and you'd like to attach a default tool to them so that they run your favourite picture viewer, module player or whatever, then follow these three simple instructions:

1) Start by clicking once on the icon in question and then select 'Information...' from the Workbench Icons menu. After a couple of seconds a window will appear containing lots of useful (and not so useful) information about your file.

2) Locate the String gadget labelled Default Tool, click once inside it and enter the filename (complete with path information eg `C:MedPlayer`), press [RETURN] and then click on the Save gadget. Now, when you click on the icon, Workbench should automatically attempt to display the contents of your text file.

3) Finally – the default tool must be capable of handling the type of information stored within the file. There's no point, for example, in attaching a picture viewing utility to a sound sample!

Auto-booting

Q **How can I use Workbench to set up my hard disk so that certain programs are loaded automatically by my Amiga when it is booted up?**

A Workbench 2.04 has a facility that will do this. What's more, using it couldn't be simpler. As you may well have noticed, the Workbench 2.04 system disk includes a directory called `WBStartUp` that doesn't actually hold a great deal.

Its sole role in life is to act as an extension to the AmigaDOS `LoadWB` command. When this command is issued (either from the directory or via the StartUp-Sequence), the Amiga attempts to execute every program contained within this directory.

If you want to add your own programs, all you have to do is to copy them into the WBStartUp drawer and you're away.

Icon arranging

Q **I'm bored with rearranging icons! Is there a quick way for me to go about tidying up a disk without having to position each icon manually?**

A This is no problem for the Amiga... simply activate the window that needs a spot of tidying and then select Clean Up from the Icons menu.

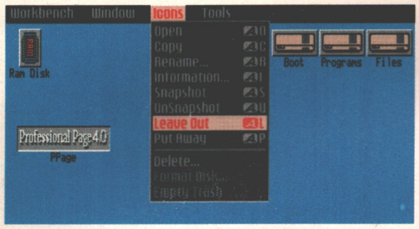
The Workbench will then attempt to group all the icons in that window to create a tidier and more manageable display.

Please note that if you wish to keep the icons in their new positions from now on, then you must SnapShot them.

Icon drag that

Q **Why is it that when I drag an icon out on to the Workbench screen, it doesn't appear in the same place when I reboot?**

A Icons only stay attached to the Workbench screen when you select the Leave-Out option from the Workbench Icon pull-down menu. If you simply drag an icon out on to the Workbench without selecting Leave Out, your Amiga will return it to its original location when you reboot. Once you select Leave Out, you'll also have to SnapShot the icon if you wish to fix its position on the Workbench screen. Once you've positioned your icon, select it with the mouse pointer and then select `SnapShot` from the Icon pull down menu. You can also fix the position and size of a window by clicking on the window you wish to fix and selecting `SnapShot -> Window` from the Window menu. The `SnapShot -> All` option in the same menu is often a better bet if you wish to snapshot both the positions of icons and the dimensions of the window that contains them.

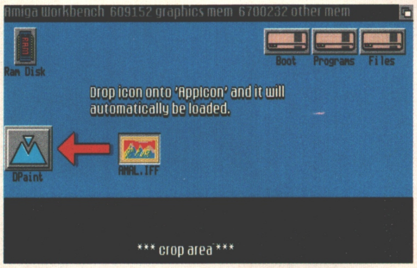


The Leave Out option ensures that useful icons are left on the Workbench for you to use.

AppIcon, Cor!

Q **So just what does an AppIcon do?**

A Well, when you click on a program's AppIcon that program is activated and its screen or window comes to the front of the display. AppIcons are also used as a convenient way of loading files into applications. Instead of manually loading a file into an application using a menu option such as Load File, AppIcons enable you to pull in a file simply by dropping the file's icon on to the AppIcon. Quite a few newer products support AppIcons – EA's new *Deluxe Paint IV AGA*, is a good example.



AppIcons provide an easy method of activating and loading programs.

Commodity dealer

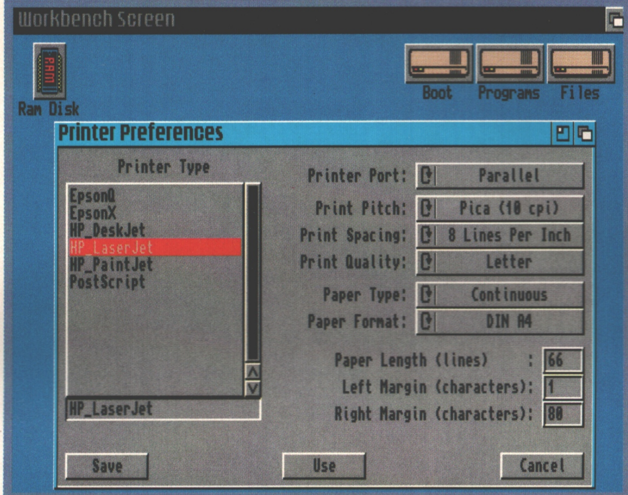
Q **What are Commodities? I've tried loading *Commodities Exchange* in Workbench 2.04 but it doesn't seem to do a lot. Can you help?**

Continued on page 28

Printer Problems solved

Right connections

Q **I've just bought a printer for my Amiga, and although I have managed to connect it up, I can't get it to work with my word processor. Could you tell me what I am doing wrong?**



If you've got the correct printer driver, then there's no reason why your Amiga shouldn't be able to run everything from a DMP to a full-blown laser.

A There are many different sorts of printer, ranging from that humble workhorse, the 9-pin dot matrix, to high-quality lasers and inkjets. In order for the Amiga to be able to control these printers it must be told how the printer expects to receive the information you wish to print. This is handled by a printer driver, which is essentially a program that takes the generic printer codes generated by the Amiga and converts them into control codes that your printer can understand. So to get your printer to work you need to install the relevant printer driver.

Don't worry – this isn't as hard as you may think.

To install a printer driver, load up the Preferences program called Printer and then select the printer driver you need from the list displayed. Once you've done this, click on the Save gadget and the setting will be stored.

Don't worry if there isn't a printer driver that exactly matches the printer you own.

As a general rule, use the EpsonX driver for 9-pin dot matrix printers, EpsonQ for 24-pin dot matrix printers, HP DeskJet for Inkjets and HP LaserJet for lasers.

Baby, drivers

Q **The driver I need is not on the Workbench disk. Where must I copy the driver to in order for the Workbench printer preferences programs to recognise it?**

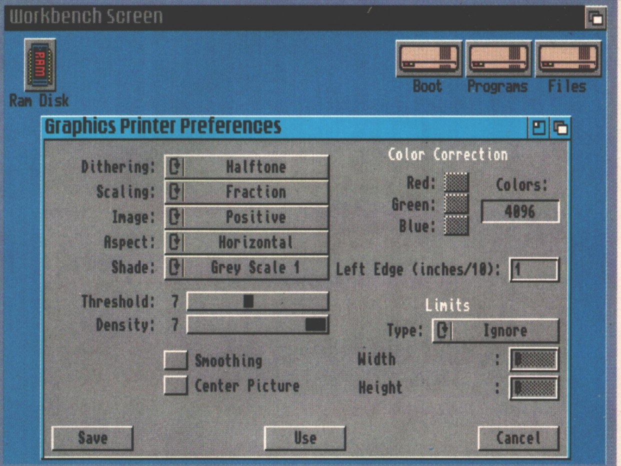
A For a printer driver to be accessible to the Printer Preferences program, it must be copied into the DEVS:Printers directory on your Workbench disk. It is possible to redirect Printer Preferences to a different disk under Workbench 2.04 simply by entering the path name that points to your printer driver in the Path string gadget. Unfortunately, Commodore removed this facility from Workbench 2.1 and Workbench 3.0.

Darkling pix

Q **I'm trying to print pictures on to paper from DPaint but the results I'm getting are rather dark. Is there a way of making my print-outs brighter?**

A The brightness of the print-out depends on the density setting of the printer. To get a lighter print-out, load up the Preferences PrinterGFX program, locate the Density slider and knock down the setting until you're happy with your print-outs.

Alternatively, why not simply lighten all the colours in your picture?



If you want to alter the brightness of your print-outs load the Preferences *PrinterGFX* program and adjust the Density slider.

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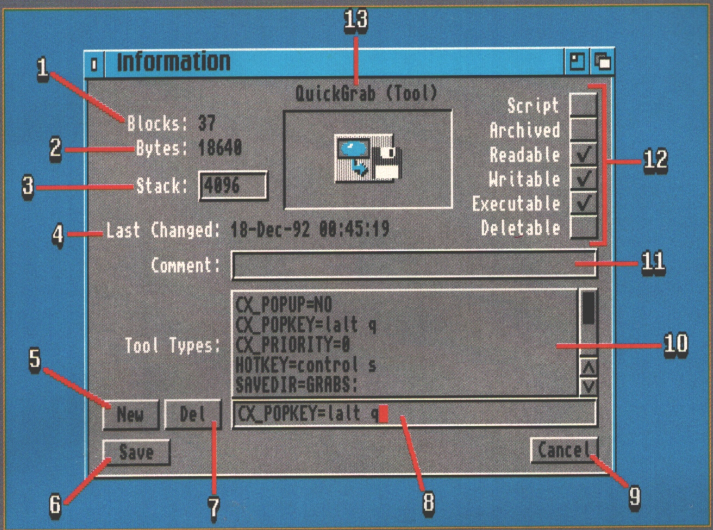
Tooltype type things

Q What are icon ToolTypes? What do they do?

A ToolTypes are the equivalent of Shell's command line arguments and they're stored in the icon file attached to the program or datafile in question. When you click on an icon, Workbench reads all the ToolTypes attached to that file and then passes them to the program as command line arguments. Like Shell arguments, ToolTypes are specific to the file that they are attached to. If you wish to modify the tool types attached to a file, simply click on its icon once and select `Information...` from the Workbench Icon menu. Here's a closer look at the requester that should be displayed.



1. The Blocks option displays the number of disk blocks that the file uses on disk. Advanced users will find this sort of information useful.

2. A more useful variation on the Blocks option is the Bytes display that, not surprisingly, displays the size of the file in bytes.

3. Stack is a rather advanced option that you shouldn't tinker with unless you really know what you are doing. If the icon already has a Stack setting, then leave it.

4. It is often useful to be able to tell what is the most recent version of a file. For example, if you have three versions of the same *Sound Tracker* score, and you're not quite sure which is the final version you can check the 'Last Changed' display to find out.

5. The New gadget is used to prepare the ToolTypes list for a new addition. So if you wish to add a new ToolType, you must click on New.

6. Pretty obvious this one... The Save gadget stores all the changes that you make on disk so that they become permanent.

7. The Del gadget deletes an extant ToolType entry. To use it, select the ToolType entry that you wish to delete by clicking on its name in the ToolTypes list (see 10) and then click on the Del gadget. The ToolType will then be removed from the list.

8. This String gadget is used both to modify extant ToolTypes and to add new ToolTypes. If you wish to modify a ToolType, simply select it from the ToolTypes list, click inside this string gadget, make your changes and then press [RETURN]. To add a new ToolType, remember to click on the New gadget first (see 5).

9. If you make changes that you're not happy with, clicking on the Cancel gadget will exit the Information requester and the changes you've made will be removed.

10. The ToolTypes list displays all the ToolTypes currently attached. As you add additional tool types this display will be updated.

11. The Comment String gadget enables you to add File Comments which are exactly what the name suggests – comments about files. They have no effect on the operation of the icon or the file they are attached to, but they can display about dates, modifications and so on.

12. These six gadgets enable you to set a file's protection bits. Here's a quick rundown of what they do:

Script – The Script Bit informs the Amiga that this file is an AmigaDOS script.

Archived – The Archived Bit is of useful when you run Workbench from a hard disk. Use it to tell the Amiga to ignore this file when backing up the hard disk.

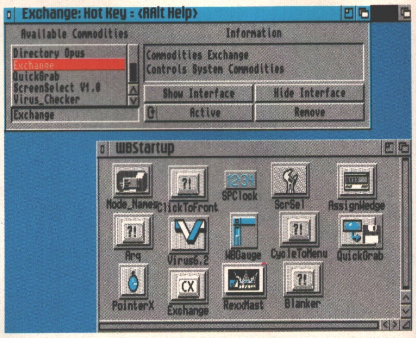
READABLE – If more than one person uses your Amiga, then you can protect your files from prying eyes by turning off the Readable flag. There's one big problem with this option though – Commodore still hasn't got around to implementing it yet, so I'm afraid it doesn't work!

WRITEABLE – Another option that doesn't work. When it does, it will enable you to stop files from being modified.

EXECUTABLE – Turning off this protection bit enables you to stop programs from being run.

DELETABLE – How many times have you accidentally erased a file that you wanted to keep? If only you had turned off Workbench's Deletable option you wouldn't have been able to make that mistake.

13. Filenames and types are displayed here. The Amiga recognises four icon types of – Project icons (for datafiles), Tool icons (for programs), Drawer icons (for directories) and Disk icons.



Commodities are powerful Workbench utilities that are mostly hidden from the user.

A The *Commodities Exchange* is a superb utility built into Workbench 2.04 and above, that enables you to use utilities called Commodities that run in the background and act upon certain events.

What makes Commodities different from normal programs is that, for most of the time, their presence is hidden from you. They only pop up on the screen when a particular event is detected – a virus is found on a disk, for example – or the Commodity is forced to reveal itself by the user pressing a 'hot-key' combination (a predefined combination of keys.

Dark entries

Q I've noticed that several of my Public Domain programs enable me to add entries to the Workbench 2.04 Tools menu. Is there any way of adding my own options to this menu?

A Surprisingly, Workbench doesn't enable you to add your own programs to the Tools menu (only applications can do this, I'm afraid!). There is an answer to this problem in the Public Domain – the program you want is called *AddMenu* and is available on the Fred Fish collection of disks.

That shrinking feeling

Q Having recently upgraded to Workbench 2.1 from Workbench 1.3, I noticed that all Workbench windows have Shrink gadgets in their top right hand corner. Is there any way of storing my own set of shrink dimensions for a window?

A Although Workbench doesn't enable you to store the Shrink dimensions of a window in

You can add entries to your Workbench Tools menu using the Public Domain program *AddMenu* from the Fred Fish collection.

the same was as you can Snapshot a window, it does remember Shrink dimensions if you manually resize or position a shrunk window and then click on the Shrink gadget again to restore the window to its default dimensions. If you then close that window and reopen it later though, these Shrink dimensions are reset.

Workbench versions

Q Is it possible to run Workbench 1.3 on a Workbench 2.04-based Amiga or a Workbench 3.0-based Amiga A1200?

A If you want to run version 1.3 of the operating system, then you need to fit a 1.3 Kickstart ROM. Unless you're not one bit interested in keeping all the benefits of Workbench 2.04, then you could simply take your machine along to a Commodore approved service centre and ask them to replace the Kickstart ROM with a 1.3 ROM. A better bet is to invest in a Kickstart (or ROM) switcher, a special board that fits internally and will enable you to install two Kickstart chips inside your Amiga. With most modern ROM switchers you can switch between ROMs simply by holding down the [CTRL]+[AMIGA]+[AMIGA] keys for a couple of seconds.

Boring colours

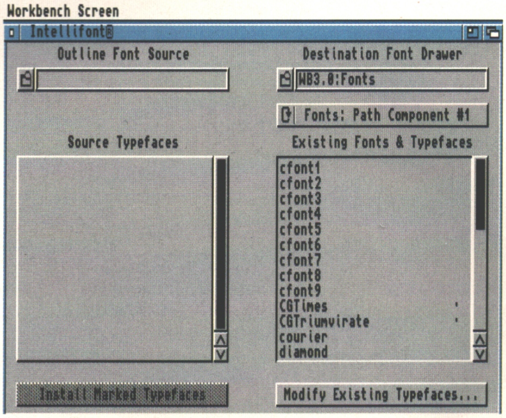
Q Why does the Workbench screen always start with its boring grey-on-white, black-and-blue palette before switching to my colour settings? Can I change this?

A Until the release of Workbench 2.04, all the Workbench's screen colour and other configurations were stored in a file called `DEVS:system-configuration`. With Workbench 2.04 many of the configuration items held in this file are held separately. The way Workbench treats these files has been changed as well. Although the System-Configuration file is read as soon as the boot-up procedure begins, your new colour settings won't be read until the line that reads `IPrefs` is executed in your StartUp-Sequence. If you'd like to modify the screen colours so that they are set immediately, you should get your hands on the Workbench 1.3 Preferences program – this stores its colour palette information in the `system-configuration` file.

War on fonts

Q What does the IntelliFont standard on my A1200's Workbench 3.0 do? When I use it, all I get is a list of available fonts.

A Intellifont is similar to the *Fountain* utility on Workbench 2.04. Both Workbench 2.04 and 3.0 offer what are known as outline fonts. These are described in terms of co-ordinates and lines, rather than pixels. If you try to expand a bitmapped font, it develops what are known as 'jaggies'. Outline fonts, on the other hand, can be expanded and reduced to just about any size with little or no loss in quality. Intellifont is used for installing additional Outline fonts into your `FONTS:` directory. You may find that some programs don't like outline fonts, so *Fountain* can also be used to convert outline fonts to standard Amiga bitmapped fonts.



Using Workbench 3's Intellifont font standard and *Fountain* utility you can install and use additional outline fonts.

Editor or icon?

Q Is it possible to change the appearance of the RAM Disk icon so that my choice of icon appears whenever the Workbench is booted up?

A It certainly is, but you'll need to edit the StartUp-Sequence in order to make the change work. Start by loading up the Workbench Icon Editor and then load in it the file called `disk.info` from the RAM disk.

This file contains the image data for the RAM disk icon. Once it has been loaded, draw the icon that you would prefer and then save it back to the RAM disk.

Next, quit out of the Icon Editor, enter the Shell and type the following commands remembering to press [RETURN] after each line.

```
1> Copy RAM:disk.info S:RAMdisk.info
1> Ed S:StartUp-Sequence
```

When you've entered the second command, a text editor should appear containing your Startup-Sequence file. Find the line that reads LoadWB and then enter the following line immediately before it.

```
1> Copy S:RAMdisk.info RAM:disk.info
```

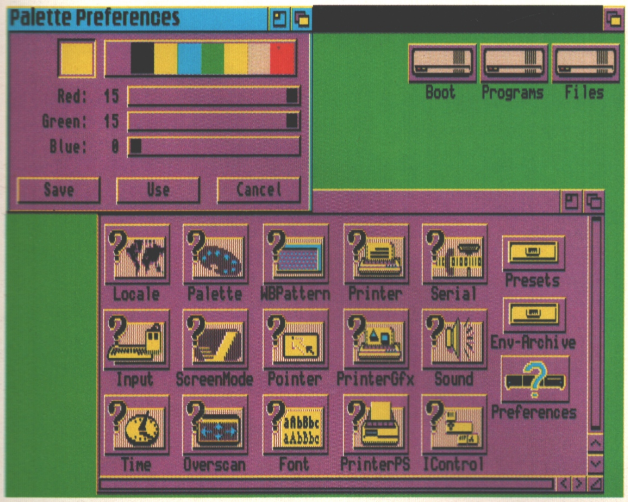
When you reboot your Amiga, your new icon should be used in preference to the standard RAM disk icon.

What's the diff'?

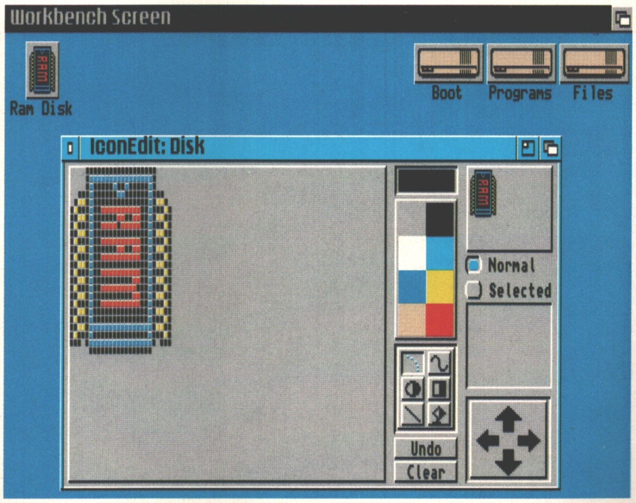
Q What's the difference between Workbench 2.04, Workbench 2.05, Workbench 2.1 and Workbench 3.0?

A There's very little difference between Workbench versions 2.04 and 2.05. Workbench 2.05 was a slightly modified version of 2.04 that provided support for the A600's PCMCIA slot in the form of the PrepCard utility. Workbench 2.1 is a new version of Workbench designed to replace both 2.04 and 2.05. It provides a number of useful extras including a built-in copy of Consultron's excellent *CrossDOS* utility (given away on the cover of **AF**40) and a number of enhanced requesters and operations. Workbench 3.0 is actually older than Workbench 2.1 and is a spe-

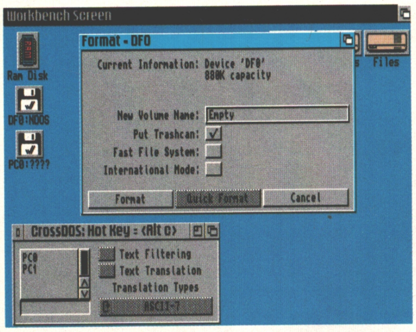
Continued on page 30



The Workbench 1.3 Preferences program will alter the way you look at your Amiga forever. You can use any colours you like for Workbench, even these.



Changing the normal, boring run-of-the-mill icons (such as this one for the RAMDisk) is not the most complex of tasks. See above – Editor or icon?



Workbench 2.1 has many new features including *CrossDOS* and improved disk operations.

cial version of Workbench that will only work on machines equipped with the new AGA chip set. As a result, it's currently only available on the A1200 and A4000. .

Stop starting

Q When I place certain Commodities into my WBStartUp drawer, they display windows when my Amiga is booted up. Is there any way of stopping this?

A You can stop most commodities from displaying windows when they are first loaded by changing the `CX_POPUP` Tooltype by using the `Information...` option in the Icon menu so that it reads `CX_POPUP=No`.

Kickstart niggle

Q Why doesn't the Workbench 2.04 boot disk work on my friend's 1.3-based A500? Surely it's the Kickstart ROM that makes the difference, not the Workbench disk.

A You're right. It is the version of Kickstart that makes the difference – your friend doesn't have Kickstart 2.04 so he or she naturally won't be able to run Workbench 2.04. To make things a little clearer, you need to understand how the Amiga's operating system is structured. Every Kickstart chip contains libraries that in turn contain lots and lots of routines that are called by the programs you run on your Amiga in order to perform functions such as opening a window, or reading a file from a disk. Because the Kickstart 2.0 ROM contains many new routines that aren't present in Kickstart 1.3, any programs written to use those new routines won't work under 1.3 which explains why the Workbench 2.04 disk won't work.

Colour preference

Q I've recently upgraded to an Amiga A1200, and I've noticed that Workbench's ScreenMode Preferences enables me to open up a Workbench screen with up to 256 colours. However, when I use the Palette tool to edit the screen's colour palette, I can only change the first eight. Where have the other 248 colours gone?

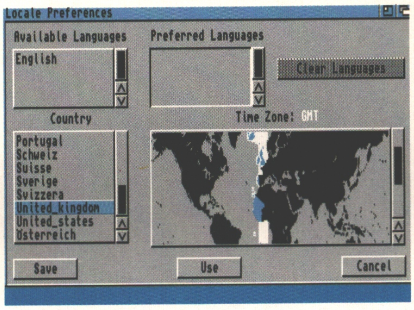
A The other 248 colours are actually set aside for displaying pictures on the Workbench screen. If, for example, you used the Preference program `WBPattern` to drop a picture into the Workbench backdrop screen, those extra 248 colours would be used to hold the colour palette of the picture.

Locale hero

Q I've noticed a program called *Locale* on my A1200's Workbench that displays a map of the world. Is it something to do with time zones?

A The Workbench *Locale* program is a new feature of Workbench 3.0 (and 2.1) that makes the Amiga's operating system multilingual.

Programmers now have the ability to build in several languages to Amiga programs. *Locale* enables you to take your pick so that the program will run in that langauge. So keep your eye out (read ***Amiga Format***, plug plug!) for European *Locale*-compatible programs from now on, we hope that these will be proliferating in the future.



Workbench 3.0's new *Locale* feature makes Workbench multilingual with the right programs.

Hot key action

Q When I have a selection of different Commodities up and running, I've found that several of them share the same hot-key combinations. How do I change a Commodity's hot-key?

A All you need to do is to change the Commodities `CX_POPKEY` to a different key combination. Key combinations must be expressed in the form `<qualifier> <key>`, where `<qualifier>` is one or more of the Amiga's special keys.

Commodities Exchange understands [CTRL], [SHIFT], [COMMAND] (Amiga keys) and [ALT] as legal qualifiers. For example, if you wanted a Commodity to pop up when the left Amiga key and 'A' are pressed, you would change the `CX_POPUP` tooltype to read `CX_POPUP=LCommand A`.

The 'L' in front of Command is used to distinguish between left and right (use 'R' for right) where there is more than one of a particular key (there are two shift keys, for example).

Clipboard explained

Q What is the Amiga clipboard and how do I use it?

A The Amiga's clipboard is a very under-used part of the operating system that enables programs to share a common memory pool that they can use as a temporary storage area. Data written to a clipboard can be shared between programs, enabling you to import and export information between applications with ease. Unfortunately, very few applications support this feature.

More than one icon?

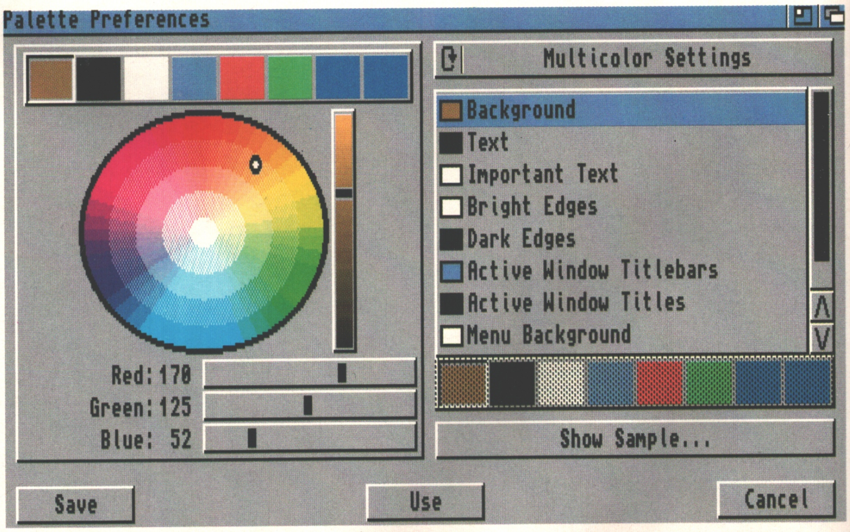
Q Is it possible to select more than one Workbench icon at any one time?

A Workbench provides two methods of selecting more than one file. The first method is to hold down the [SHIFT] key when you select icons. The second – and easiest – method is to drag out a selection box around the icons you wish to select. Do this by holding down the left mouse button and then dragging the mouse pointer across the screen to form a box.

Backdrop dramas

Q How can I get Workbench to always set to Backdrop mode when I boot up?

A Simple. Just set the Workbench screen to backdrop mode, click somewhere on the Workbench screen (not inside a window) and then select `SnapShot -> Window` from the Window pull down menu.



Only the first eight of the 256 colours that are available to you using Workbench on an A1200 can be changed using the Palette tool, the other ones are used for displaying pictures and the like.

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DAY OF THE DISC

The next stage in the development of computing will be the general acceptance of Compact Disc storage. In fact the Amiga user is as close to this world as anybody else. So let's explore it now...

From a great height

Q **I have been told that you can drop a CD-ROM out of a third storey window and it will still work because the read head never actually touches the disc because it uses laser light so scratches won't affect it. Is this true?**

A Well statistically it is possible that out of every 1,000 CDs dropped from this height, at least one might work. However, the rubbish spoken about being able to fry an egg on a CD after carving it up with a scalpel and then running over it with an artic' is just that, it's rubbish. Even though the CD-ROM drive mechanism doesn't actually make contact with the CD (but then again, neither does the read/write head on a standard hard disk or even on a floppy disk) and despite the fact it uses laser to read through the clear plastic and aluminium coatings, this doesn't mean that a scratch across the data-holding media won't corrupt the disc. The thing that makes CDs differ from magnetic media is the fact that you will still be able to read some of the data from disc. This can be twice as frustrating as not being able to read any of it.

Technology wait-state

Q **I have an A570 drive for my A500 and this is the only thing stopping me from upgrading to an A1200. Am I doing the right or the wrong thing by waiting for an A1200 CD-ROM drive?**

A This depends very much on what you are waiting for. If it's to make use of CD technology, then the standard of CDs available at present probably means that you'll get as much from your A500 as you would from a sparkly new A1200.

Psygnosis' *Plantside* is still only in demo form as we go to press, see our next issue for an update.

Reading' and writin'

Q **Is there any way I can get hold of a Read/Write CD-ROM drive?**

A Yes there is, if you have a minimum of £2,000 to spare. Don't confuse an optical drive such as

Compact History

Compact Discs have been with us for more than 10 years now, but have been mostly seen in shops such as Our Price or Rival Records rather than Virgin Games stores. However, it is widely accepted that within the next two years, CD will take over from floppy disks as the premier storage medium for computers. So just how did the small silver discs make their way from the hi-fi to your Amiga? In the beginning there were two companies – the Dutch-based Philips and the Japanese electronics giant Sony. These two hold the copyright and patents to the Compact Disc trademark worldwide, so for every CD you buy, they still make an amount of money.

So what makes computer CDs differ from audio CDs? Obviously not the way they look, they are both 5-inches in diameter, nor the way they are initially constructed; they come from the same factories. No, what makes them so different is the standards

Even Jonny Ross fell for the charm of CDTV in the beginning, that must prove something.

the Magneto Optical (£999.95 from Power Computing) that was reviewed in **Amiga Format**'s March 1993 issue 44 and received an amazing 95 per cent score. It stores data in the same way as a standard hard disk – magnetically – but it reads it using a laser. Basically the Magento Optical enables you to use 120Mb 'discs' (£35 each) that can be both read and written to. However, you still can't use the far cheaper CDs with this drive.

The ability to write to CDs in the same way as floppies, still seems to be a way off for the average user. The reason for this is unfathomable to most rational human beings, other than it being based on economics. Read/Write CD-ROM drives would be vastly cheaper for the home user – £100 for 600Mb. Sounds expensive? Compare it to around 682 880K disks at about 60p each… that's roughly £402.20!!!. We know the technology is there, what we don't know is why no one is making it commercially available. If one was of a suspicious frame of mind, one might believe that certain companies didn't want to open up the technology. Surely not…

Best CDs for you

Q **What are the best CDs for CDTV?**

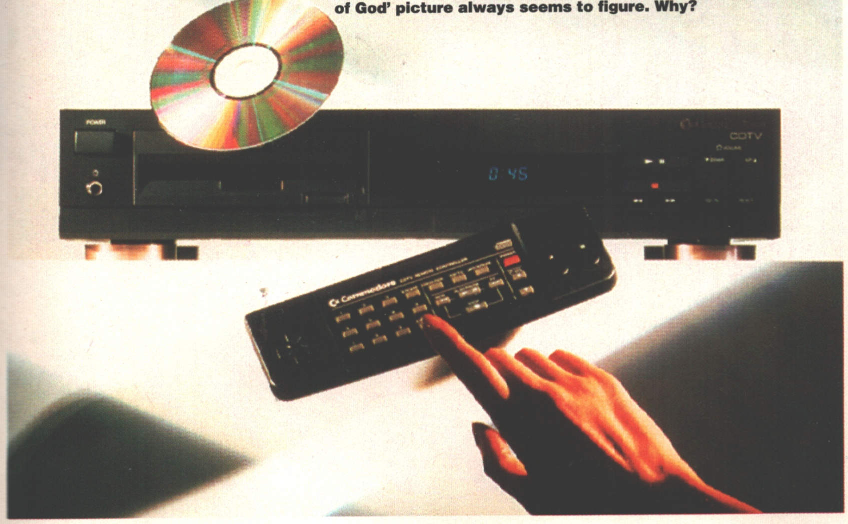
A It must be said that **Amiga Format** is the one magazine that has regularly run comprehensive lists of reviewed and rated CDTV discs. The last big round up was featured in **Amiga Format** number 39 (October 1992). However, the quality of CDTV software is generally very poor. Just to give you a taste of what we and **Amiga Format** feel are the best CDTV titles, here is the Top Ten so far:

1) ***Fred Fish CD-ROM Collection***
(£19.99, 89 per cent, Hypermedia Concepts)
2) ***Japan World***
(£49.99, 89 per cent, Global Learning Systems
3) ***CD-PD Collection***
(£19.99, 89 per cent, Almathera Systems)
4) ***American Vista Atlas*** **and** ***World Vista Atlas***
(£54.99 each, 85 per cent, Applied Optical Media)
5) ***GardenFax Series***
(£34.99 each, 85 per cent, Intersearch)
6) ***Learn French with Asterix*** **1&2**
(£34.99 each, 84 per cent, EuroTalk/Microdeal)
7) ***New Grolier Encyclopaedia***
(£39.99, 84 per cent, Electronic Publishing
8) ***CD-Remix 2***
(£29.99, 80 per cent, Microdeal)
9) ***The Case of the Cautious Condor***
(£34.99, 79 per cent, Tiger Media)
10) ***A Bun for Barney***
(£34.99, 79 per cent, BBC Multimedia)

As you can see, aside from *The Case of the Cautious Condor* (and possibly a *Bun for Barney)* there are no games in this little lot. This doesn't mean to say that no games have been released for the media – titles such as *Lemmings* (75 per cent, £34.99) *Battle Chess* (£39.99, 75 per cent), *Falcon* (the flight sim, £49.99, 75 per cent), *SimCity* (£29.99, 75 per cent) are just a few of the famous names released on CD.

However, little or nothing new has been done to ensure that these games gain from the translation to Compact Disc. The vast expanse of data-loving disc space is left fallow as few (if any) new or improved graphics are added, nor are re-mastered and/or re-worked music, sound effects or speech.

You will notice however, that reference works do feature large in the Top Ten. This is because CD with its hierarchical file structures, masses of storage space and the capability to store and use sound, speech, music and graphics in one, is far better used in this area than in any other. It is also surprisingly easy to translate reference works from book, or magazine form over to Compact Disc. Frankly, if you are looking for games-playing thrills'n'spills then CD is not the media for you right now – however with the development of games such as *Microcosm* and *Planetside* nearing the stage where we can look at some in-game action, this is improving.



CDTV has been sold as a stand-alone multi-entertainment centre for the family and as a suped-up Amiga, and this 'hand of God' picture always seems to figure. Why?

Coffee stains

Q **Is it true that I can wash a CD-ROM if I spill coffee all over it.**

A Yes, the plastic outer coating on a CD-ROM will put up with a quick dowsing in tepid, soapy water. Just make sure not to use anything abrasive such as cheap cotton or nylon. A chamois leather is ideal for this kind of maintenance.

CD-ROM, CD-i, CD+G

Q **Can my CDTV read other CD-ROM formats such as CD-i or CD+G?**

A CDTV can read and make use of other CD formats. CD+G is the one that leaps most immediately to mind. This system is the first real crossing point between audio Compact Discs and computer-useable Compact Disc. Essentially, CD+G (which stands for Compact Disc + Graphics) enables you to play your favourite raving-mad, rock'n'roll, hard-core Fleetwood Mac *Tusk* album and have the deeply meaningful lyrics shown on screen alongside a few pictures of the band. At the moment, these

Continued on page 34

A great game in its day. *Sim City* transferred to CD with no great enhancements.

they use for storing data – because don't forget that the only thing that audio CDs hold is data.

The first data storage standard developed for use with Compact Discs was the Red Book standard. This was jointly developed by Sony and Philips.

The Red Book definitions still hold true today, and mainly deal with the way in which data is stored on the disc. For the more technically minded of you, Red Book states the number and method of synchronisation bytes and error correction used when each section (or packet or frame) of data is sent or read to or from CD.

The error correction system used is called CIRC and stands for Cross Interleave Reed-Solomon Correction. The CIRC system is able to cope with and recover up to 450 bytes of data error at one time, and has been tested to the extent that you can rely on it to produce a mere one unrecoverable error in 2,000 discs worth of data, not bad really if you consider that's 2,000x600Mb = 1,200,000Mb of data.

With the rise of computer culture and the growing demands being made on Compact Discs, the Red Book standard had to be improved, and this gave rise to the Yellow Book standard.

images are static (due to the lack of FMV – see a little later) and the lyrics don't even come with a bouncy ball, but the theory of your own *Chart Show* is still there. As for CD-i (that's Philips' own brand of Compact Disc multimedia player), no CDTV is unable to make use of these discs. However, because the ground covered by CD-i and CDTV is so similar, you're not really missing out on a great deal.

Of the other CD formats such as CD audio and CD-ROM XA, a CDTV should proffer no problems at all. Commodore's player is quite capable of playing your standard audio CDs (yes even Fleetwood Mac ones without pictures), in fact there is software available that enables you to play around with the sounds of your own CDs (*CD-Remix 2*, £29.99, 80 per cent, Microdeal).

CDTV drives

Q What kind of specialist CD-ROM drive is used in the CDTV?

A Who said it was specialist? It's not. What you have inside your sleek little black box is a standard Philips/Sony drive that conforms to the universally recognised International Standards Organisation (ISO) 9660 standard.

CDTV add-ons

Q What add-ons are available for CDTV at the moment, how much do they cost, and where can I get them?

A Below are listed what we have estimated as being the most up-to-date list of CDTV add-ons (from Indi Direct in April 1993):

The Multimedia System	**£399.99**
The Brick-ette (for use of wired mice, joysticks and trackballs)	**£49.99**
Black 1084S monitor	**£189**
SCSI controller and internal mount kit	**£149**
Internal Genlock	**£149**
Remote mouse	**£49.99**
Megachip 1Mb FastRAM	**£159.99**
External hard disk	**£269.99**

World in motion

Q What is FMV, and why is it so important?

A FMV stands for Full Motion Video and, as its name suggests, deals with the production of moving televisual images on the screen of your Amiga or CDTV. The major point to note about FMV however, is that you should be looking for full-screen, full motion video to advance you in the multimedia stakes.

At the moment, both CDTV and the Amiga armed with a CD-ROM drive are limited to partial screen video – and this is only achievable if the correct data compression and decompression is used on the data.

But true FMV has yet to arrive on the Amiga. In fact, we have been waiting since 1991 for the promised FMV chip set.

All we have instead is CDXL. This 'standard' offers partial-screen, full-motion for the CDTV and Amiga. It must be said, however, that the quality offered by CDXL leaves a great deal to be desired.

But the following quote from Commodore should lighten the heart and lift the spirits:

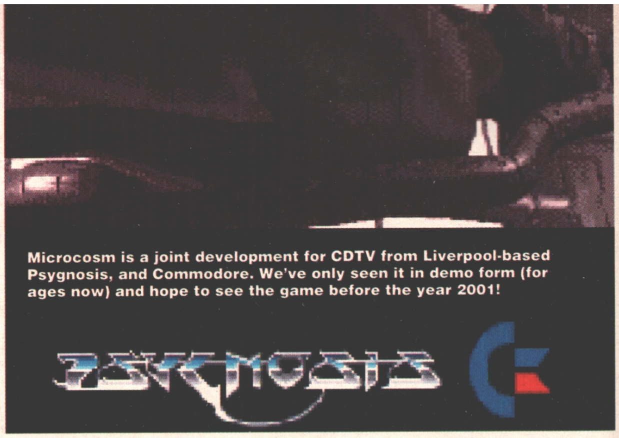
'Commodore plans to make the CDTV player compatible with the Moving Pictures Expert Group (MPEG) full-screen, full-motion standard, once it is established and available'

Unfortunately, this quote appeared in the July 1991 edition of ***Amiga Format*** (page 39 of issue 24 for the truly interested). As for the importance of FMV, this really can't be underestimated at this moment in the history of the computer/home leisure/office/entertainment cross-over. For example, the ability to load and edit moving video footage from Amiga-compatible Compact Disc would set the Amiga family firmly on the road to the 21st Century.

CD-only games

Q Is it true that Commodore is working on a CD-only game?

A Well not strictly true no. Commodore has certainly been involved in the funding of *Microcosm* which is being developed by Psygnosis. The game has been in development for approximately two years now, and we expect to see it in playable form by the end of this year.



Microcosm is a joint development for CDTV from Liverpool-based Psygnosis, and Commodore. We've only seen it in demo form (for ages now) and hope to see the game before the year 2001!

Old kit

Q Is there any way I can make use of my old joystick and mouse with CDTV, I don't really trust these, infra-red thingies?

A Oh yes, there certainly is, you need a device called the Brick-ette (£49.99) that plugs into the CDTV and enables you to make use of your old and trusted kit.

CDTV A1200?

Q Are there any plans for an A1200-based CDTV? The A500 has done a wonderful job so far, but I would love to make use of AGA and the AA chip set in the slinky black casing with the infra-red controllers.

A What a timely question. As we were going to press, the computer leisure industry's trade magazine, *Computer Trade Weekly* ran a front cover story confirming rumours that we had been aware of for some months. In short the story said that Commodore is indeed planning to launch a CD and 3.5-inch disk-based machine that will make use of the AA chip set (as seen in the A1200 and A4000 machines). Although the machine has not been confirmed by Commodore's UK MD, Kelly Sumner, ***Amiga Format*** sources in the United States have made it clear that the machine does exist. We expect to see a new Commodore CD machine in the shops before Christmas this year.

Piracy? No problem?

Q Why will CD-based games cut down on piracy? I mean, if a game is only 1.5Mb or 700K, it's only 1.5Mb or 700K, putting it on CD is not going to make any difference – or are we going to be looking at huge sprawling adventures (which I hate!) like you see on the PC? Surely the anti-piracy argu-

Also developed by Sony and Philips, Yellow Book moved away from audio and into the realms of CD-ROM (the very misnamed Compact Disc Read Only Memory, it is misnamed because it has nothing whatsoever to do with what you would consider to be conventional computer memory – hence it is also occasionally referred to as Compact Disc Read Only Media).

Although similar in design and construction to audio CDs, CD-ROMs are totally different in the way in which they deal with data. CD-ROM (which is the basis of CDTV) packages its data in 24-byte lumps. There are 98 of these 'data packages' on each disc, you can analogise these to the blocks on standard floppy disks. Each block is equivalent to 2,352 bytes of data. Of this massive figure (more than 2Mb in each single block) 484 bytes are used for synch bits and error correction, while the remaining 2,048 (2Mbs) are reserved for data storage. A CD-ROM is said to be able to

Yet more media stars were attracted to the CDTV (here's Maggie Philbin and someone else), then Commodore decided to change the marketing.

ment is only propounded in order to keep the prices of software (games!) up until the long-awaited CD revolution finally arrives?

A Without sounding too much like a crusader on behalf of (a) the software industry – because we believe that some games are still pitched too expensively – or (b) the CD-industry – because we believe that the format has been marketed in a massively confused manner – there are strong reasons to believe that a growth in CD-based software will cut down on piracy (and, if the powers-that-be are to be given any credence, that prices will come down too).

Firstly, to get past the point of 700K games. There is little or no point in putting a single 700K game on a CD that's for certain, so this means that we will be looking at some high-class complications.

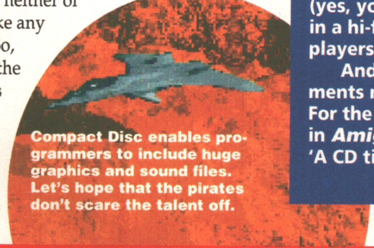
Secondly, the boring adventure game syndrome. No, the chances are that Amiga developers will not suddenly switch over to this area (although they will leave the Amiga if piracy continues). There's really no reason to, especially when you consider that programmers using CD will have the option to include huge, impressive graphics and sound files to make use of the CD's capabilities. If this means that games such as *Sensible Soccer* will be able to make use of 1,000s of pitches, refs, teams, lighting options, sounds and other options, and that games such as *Railroad Tycoon*, *A-Train*, *Populous*, *Civilization*, and *Historyline* will become even more enormous than before, and that flight sims will be able to include vast, detailed landscapes and sound effects, then the potential of CD is really exciting.

As for piracy... well the way that data is stored on a CD means that developers can split the code for a piece of software right over the 650Mb of storage space. This means that if you really wanted to copy a game, you would have to copy the whole CD – including any of the garbage filler code used to pack the disc. This gives you two options:

1) Buy a read/write CD mastering system. Fine if you've got a minimum of £2,000 spare, as well as the number of CDs it would take to justify the cost.

2) Buy approximately 740 low density (880K) or 600-plus high density (1.4Mb) floppy disks to copy one game on to.

And frankly, neither of these options make any economic sense. So, yes, CD is one of the best steps Amigas could take in order to escape a grim demise at the hands of the grimmer pirates!



Compact Disc enables programmers to include huge graphics and sound files. Let's hope that the pirates don't scare the talent off.

WHAT TO LOOK FOR WHEN BUYING A CD

Q What's the difference between buying programs or games on CD and buying on floppy?

A You may well have seen a number of games coming out in Compact Disc format for the Amiga and the CDTV, but so far many of the CD versions have been disappointing.

For example, *Xenon 2* was awarded an ***Amiga Format Gold*** of 93 per cent way back in issue three (1989) it cost £24.99. However, when it was re-reviewed on CD in 1992's issue 39, it was priced at £29.99 and the reviewer (ex-editor Damien Noonan) said: "When it came out, this Bitmap Brothers' up-the-screen shoot-em-up was very highly rated for its detailed graphics, action-packed gameplay, neat power-ups and innovative pop star tie-in soundtrack. Now, the graphics look dull and the gameplay is revealed as being too enemy heavy, with massive power-ups trying to balance play in which too little strategy and skill is required... only the soundtrack remains innovative, using the CD's sound storage capability to add a high-fidelity Bomb The Bass remix track – the old *Assault on Precinct 13 MegaBlast* – put together in Roland's innovative 3D Sound. Best bought by Bomb The Bass completists (yes, you can play CD Amiga soundtracks in a hi-fi CD player) rather than by games-players..."

Games such as *Xenon 2* have been ported over from floppy to compact disc format, but this does not mean that they've been greatly improved.

And this is one of the better statements made regarding floppy-to-CD ports. For the most part these statements made in ***Amiga Format*** ring constantly true: 'A CD title might be expected to give more' (*Battle Chess*, 75 per cent, £39.99)

'It's also a shame that it has had no enhancement...' (*Lemmings*, 75 per cent, £34.99)

'It's not a great game and has no enhancements on the original' (*BattleStorm*, 37 per cent, £29.99)

On the up-side for owners of CDTVs with no floppy drives, a CD version is likely to last longer than a floppy version – the parallel between vinyl and audio CD is a good one here.

Moving away from games, there are some areas in which CD excels over its floppy compatriot – reference works. The reason for this is, that with 650Mb of data storage the programmers are able to use sounds, graphics and text in an interactive manner. Good stuff. If you want to explore this area of CD development, try the following:

The GardenFax Series from Intersearch (85 per cent, £34.99).

American Vista Atlas & World Vista Atlas from Applied Optical Media (85 per cent, £54.99).

store up to 660Mb of data. However, in real terms you are only really looking at 500Mb of really useable information.

As a passingly useful piece of heavily technical information, the additional error correction offered by Yellow Book CD-ROM has every 2K of data accompanied by 276 bytes of error correction. This has been tested as providing an error rate of one data transmission error for every two quadrillion discs used.

CDTV and the A500's A570 CD drives are based on the CD-ROM principle – in fact all CD-compatible devices in the computer world owe their existence to the Yellow Book and Red Book standards.

But these common standards were set as the ground rules for CD development, they are there to be built on and hence we now have the following:

ISO 9660: International Standards Organisation standard number 9660. The basic cross-machine standard for Compact Disc, also known as High Sierra, a name derived from the hotel on Lake Tahoe where a group of companies including Apple Computer met in 1986.

This standard governs the way in which files are stored (in a hierarchical system) on Compact Discs.

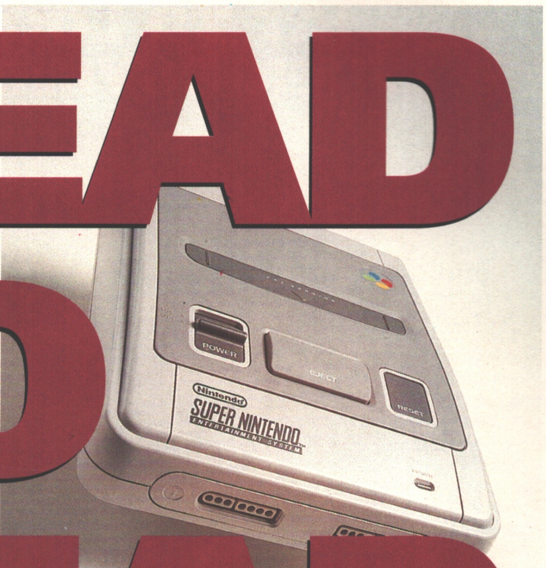
CDTV – Commodore Dynamic Total Vision.

CD+G – Compact Disc plus Graphics. (CDTV is compatible with this format that enables you to access a mixture of straight audio and still images).

CD-i – Compact Disc interactive. This is Philips' and Sony's own machine standard that still makes use of ISO 9660, CD-ROM and CD+G.

Orange Book: this governs the way in which data is written to CD-ROM . At the moment this will not affect you a great deal because no Read/Writeable CDs are available to Amiga or CDTV users – we can only hope that this is on the horizon.

HEAD TO HEAD



So just how good is the Amiga in relation to its rivals? Well, we think it's the best, and here we tell you exactly why we've come to that conclusion by comparing the Amiga range with the rest...

Amiga v Falcon

Q I've heard that the new Atari Falcon is a better machine than the A1200. How true is this?

A Both machines are 32-bit, but the A1200 comes from Commodore. Unlike its competitors, Commodore has proved itself capable of getting machines in the shops at the right price and then supporting them afterwards.

Nobody wants to spend £400 on a computer which has all the future prospects of a Robert Maxwell-sponsored swimming course. The future of a computer depends entirely on the amount and quality of software released for it. The A1200 already has a huge software base, thanks to its compatibility with some other Amiga software. The Falcon can boast no such compatibility.

The A1200 is a seriously powerful machine. Thanks to the custom graphics chips it has 16.7 million colours, or True Colour. This is in stark contrast to the Falcon's measly 256,000 colours. All of which means that the Amiga will continue its dominance of the video and graphics markets just like it has for the last eight years.

If you enjoy playing games on your home computer, then the A1200 is streets ahead. Unlike the Falcon, the A1200 can already lay claim to the allegiance of hundreds of companies, including the largest British companies such as Electronic Arts and Ocean. The games software being produced for Falcon is by a tiny number of small companies. The major software companies won't get behind Falcon because they're not sure that anyone's going to buy it. They have no such problem with the A1200.

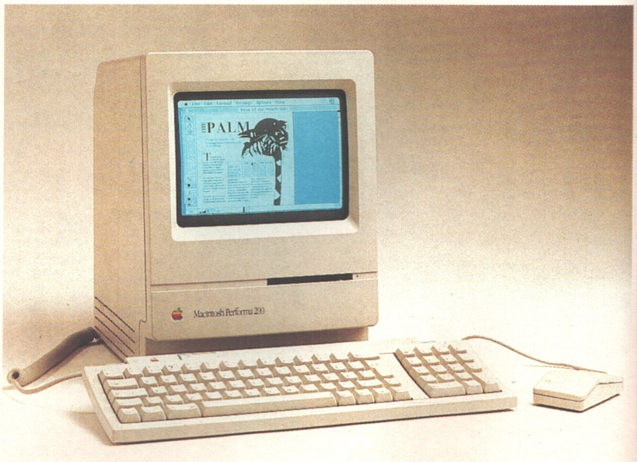
Amiga v Mac

Q I run a small business from home. Will an Amiga be capable of keeping my accounts in order or should I stretch to an Apple Macintosh?

A You'd have to stretch a long way, Apple Macintoshes aren't cheap, especially in comparison to an Amiga. What's more there isn't anything the Mac can do that the Amiga can't. The thing you have to remember is that the Amiga is primarily a home computer, whereas the Mac is designed with the office in mind. As with most serious computers you end up paying a lot for that 'business' tag that companies use.

The Amiga is extremely well catered for in the business market. Spreadsheets, databases, word processors and accounts packages to suit all budgets are available. These include some exceptionally high-quality programs such as the *Wordworth* word processor, *Professional Calc* the spreadsheet and *Superbase Professional* the database. Comparable programs to these on the Mac will cost you a good one or two hundred pounds more and yet the Amiga programs do just as good a job, if not better. In fact the job you mention, accounts keeping, could be carried out by the Amiga *Arena Accounts* package.

The other aspect you have to take into consideration is upgrading. Mac related products are expensive, whereas the majority of Amiga upgrades are designed with the home market in mind and therefore don't carry that prohibitive price tag. This means that you'll find it easier to boost your Amiga's RAM or storage capabilities.



There's no doubt that the Apple Macintosh range of computers are fine machines, but they are also far more expensive than the equivalent Amigas.

Amiga v ZX-81

Q I was thinking of buying an Amiga, but just recently I was offered a ZX-81 for nothing. Should I still get the Amiga?

A It's a tough decision isn't it, I mean it's not every day that you're offered a home computer for free, even if it is a 12-year-old machine. Let's look at the differences between an A1200 and a ZX-81 and see if we can't help you make your mind up. Obviously the first consideration is cost. The A1200 costs £399, your ZX-81 is free, but if you had bought it when it was released it would have cost you £39.95.

The ZX-81 comes with a standard memory of 1K, which compares quite favourably with the A1200's 2096K (or 2Mb) of standard RAM. The ZX-81 has acres of ROM space (namely 8K), while the A1200 has 512K of ROM space to take care of all those computery housekeeping tasks. The ZX-81 is also quite a rapid machine. It chugs along at a rocking 1MHz CPU speed, not bad when you consider that the A1200 runs at 14.32MHz.

Graphically the ZX-81 is a breakthrough. It boasts black and white graphics operating at a stonking 64x44 resolution, although you can't use the bottom two lines of the screen. The A1200 offers 16.7 million colours running at a maximum resolu-

The A1200: we reckon it comes out on top when compared to the Atari Falcon because of its superior colour capabilities, and because so many software house are committed to developing titles form it.

tion of 1280x512. Unfortunately the ZX-81 has no sound, apart from a dog-annoying bleep, whereas the A1200 boasts four channel stereo sound using custom wave form creation chips, so the A1200 just has the edge in the sound department.

What about data storage and retrieval though? The ZX-81 includes an innovative cassette output port that enables you to record your programs on to standard audio tape. This tape has endless amusement value because it can later be placed into a parent's car. Minutes of hilarity await you as the lovely screeching sound plays back through the four speaker bass-boosted stereo system and your dad drives into a tree. The A1200 has a standard 880K floppy disk system, although you can of course connect hard drives and CD drives to it.

The ZX-81 boasts an incredible number of connection possibilities. For instance you can plug it into a television or a RAM pack. By contrast the A1200 can only interface with televisions, monitors, scanners, printers, hard drives, joysticks, PCMCIA cards, video cards, samplers, digitisers, MIDI expansions and modems. The ZX-81's luxurious 40 key pressure sensitive membrane keyboard is a supreme technological advancement and just barely measures up to the A1200's 96 key microswitched responsive keyboard.

So there you have it, it's a tough decision isn't it. The A1200 just has the technological edge over the ZX-81, so our recommendation is that you get the ZX-81 *and* buy the Amiga. That way you'll be able to use the incredible games, productivity and business software on your Amiga while your ZX-81 works its little 1K heart out, wedged under the door, keeping nasty drafts at bay.

Amiga v Amiga

Q I was looking into buying a £200 second hand A500, until a friend pointed out that for an extra £100 I could get an A600. Is it worth getting the A600?

A Ultimately this depends entirely on the amount of cash you've got to spend. To put it simply, if you've got the extra £100 then go for the A600. Although the A500 is a worthy computer with an extremely large back catalogue of excellent software, it is looking a bit long in the tooth these days. Purchase an A600 and you get a state-of-the-art home computer that is capable of taking advantage of any developments in the Amiga world. The A600 is more expandable than the A500, it has a far superior Workbench and it is likely to be of use to you far longer than an A500.

More to the point, if you buy a new computer you'll get a warranty, guaranteeing its performance for a year. If you buy a second hand Amiga, no matter how good it looks or performs, there's always the risk that something could go wrong, leaving you with no come-back and a bill for repairs.

Amiga v Nintendo

Q My friend has got a Super Nintendo console that he reckons is far better than an A600. My birthday is coming up, which should I get?

A There's no contest, the A600 is streets ahead of the SNES. Look at it this way, after your friend has got bored with *Super Mario* and *Streetfighter II* what's he going to do? Spend another £60 on a game with the shelf-life of an issue of the Radio Times? On the other hand, the A600 is capable of playing games as well as the SNES. And what's more these games are often much better than the Super Nintendo because they can utilise the keyboard. Can you imagine a decent flight simulator on a SNES?No, neither can we.

The point is that an A600 is equally good at word processing or graphics and other serious applications as it is at games playing. So when you inevitably get bored with your games you can try being creative. The closest you can get to being creative on the SNES is with *Super MarioPaint*, a program that is far inferior to the *Kids' Paint* program that you can run on the Amiga.

With an A600 you can have all the fun of games such as *Zool* or *Streetfighter II* and do an awful lot of other things as well.

Amiga v PC

Q I use PCs at work and have heard that the games you can play on these are the best around. I'd like to play games as well as bring spreadsheets and word processor documents home with me. Is an A1200 up to the job?

A It certainly is. Graphically the A1200 is the equal of very expensive PCs, because it features true colour graphics. This means that as the A1200 market grows, so PC games will be released for the Amiga which utilise those Super VGA graphics. However, the reason that PCs have been blessed with such good graphics has had more to do with storage space than anything else. Because all PCs have a hard drive, software houses have been able to create huge games that utilise that disk space, whereas the Amiga has had to rely on a few floppy disk's worth of data.

Because the A1200 can support internal hard drives and as the price of those hard drives falls, so more Amiga games will be released that use the hard drive space. The thing you should bear in mind is that the Amiga was designed with games in mind, you can't say the same about the PC and so the Amiga is better at the job.

As to portability of data, the A1200 is very capable of the job. Once you've saved your data on to a floppy disk at work you can come home, insert the disk into your A1200 and, using a program called *CrossDOS*, simply drag the data on to your hard drive or floppy disk.

The majority of Amiga spreadsheets and databases are capable of importing PC data straight into memory and saving in the same format.

For instance, *Professional Calc* can read and save in *Lotus 1-2-3* format, the standard for spreadsheet data. That means that when you've finished your work on the Amiga you can simply reverse the process and your disk will be ready for use at work.

The Atari Falcon: like the A1200' it's a 32-bit machine, but if you buy a Falcon, will you be able to get the same range of software as with the Amiga.

MAKING SENSE OF ADVENTURES

Stuck down a blind alley? Getting hacked to pieces by malevolent monsters with machetés? Can't find Atlantis? Read on...

Valour-gas

Q When I'm going through the temples in *Legends of Valour* I keep getting killed by the beasts of the night. Also where is the temple of Freya?

A We've had lots of requests for help with *Legends of Valour*, so we got in touch with the game's programmers, Dimension Creative Designs, and asked them for some tips. Here's some general advice and the full map of the game, both taken from the *Legends of Valour Hint Book* which is available from US Gold.

The first order of the day is survival. When you start the game, get yourself a room and then join a temple. Don't go out at night as the town guard will have you and never carry more than 30 groats around with you.

Always spend at least two days between quests resting, eating and sleeping. Buy lots of life insurance and when you've got some spare money spend it on weapons training. If you get possessed by an alien spirit, don't get it cured if you can help it as it's beneficial to your health, appeal and energy.

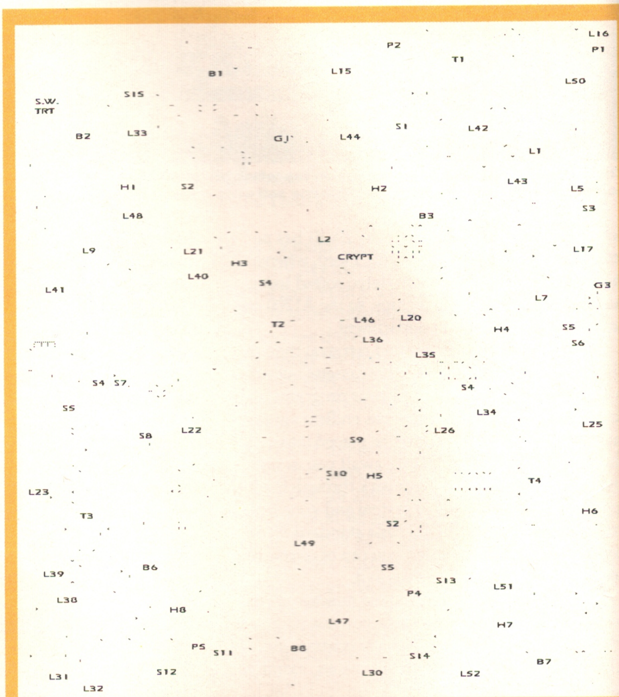
There are three main ways of making money in Mittledorf - commodities trading, running errands and mugging people. Aspiring yuppies should go for the commodities trading, especially if you don't mind carrying large amounts of goods and money. The quickest and most profitable run is usually between the prison stores/ships chandlers and Hotches and the armoury. Try not to carry more than 250g at any one time and use the West Wall route to make it to Castle Boulevard.

If you're stuck for money, why not try a spot of bat snack dealing? To do this, throw a weapon at a bat, pick up the remains and sell it for 2g.

The second lot of first level tasks aren't actually that difficult, simply a case of learning your way around the city.

In the Guild of Mercenaries you are told to collect a wages sack from the Mercenary billet. This is a building on the East Wall, just below the Hermit's Repose, behind the Temple of Ageir.

Just walk in, pick up the sack of money and return it to the guild.



THE LEGENDS OF VALOUR MAP

PRISONS

Turret Jail	P1
Castle Dungeon	P2
Hireling Prison	P3
The Brig	P4
Town Gaol	P5

TAVERNS

The Dragons Head	B1
The Trolls Arms	B2
The Hanged Man	B3
The Jug of Ale	B4
The Casino	B5
The Seahorse Tavern	B6
The Mermaids Rest	B7
The Snakes	B8

HOSTELS

The Waif's Rest	H1
Dean Mans Inn	H2
The Fleat Pit	H3
The Travellers Inn	H4
The Boardings	H5
The Hermits Repose	H6
The Thespians Tavern	H7
The Seamens Lodgings	H8

SHOPS

The Armoury	S1
Hutch's Store	S2
Skiolds Provisions	S3
Potch's Supplies	S4
The Custom House	S5
Thora's Basement	S6
The Mercenary Store	S7
Downend's Delicatessen	S8
Copestake's Deli	S9
The Pawnbrokers	S10
The Prison Stores	S11
Dirty Daglish's	S12
Olaf's Emporium	S13
Ship's Chandlers	S14
Drysdale's Salvage	S15

PLACES

Halls of Justice	L1
Vilma's Place	L2
Blacksmith's	L3
Cookhouse	L4
Meeting House	L5
Public Gallery	L6
Town Hall	L7
Coach House	L8
Asylum	L9
Brewhouse	L10
Slaughterhouse	L11
Sablegoose Chine	L12
Guardroom	L13
Chimerics Retreat	L14
The Castle Keep	L15
The Northeast Turret	L16
The Barrack Square	L17
The Main Square	L18
Gatehouse	L19
Surgery	L20
Charterhouse	L21
Hall of Stones	L22
Charnal House	L23
The Almshouse	L24
Institute of Zoolatry	L25
Shrine	L26
Billet	L27
Laundry	L28
Riggers Store	L29
Shrine of Njord	L30
Southwest Turrest	L31
Gladsheim	L32
Scriptorium	L33
Jewellers	L34
Chapterhouse	L35
The Grotto	L36
Tax Office	L37
The Embalmers	L38
Wanlock Tombs	L39
The Observatory	L40
The Hags Pit	L41
The Museum	L42
The Belfry	L43
The Architect's House	L44
Silas' Place	L45
The Way of the Valkyries	L46
Vestibule	L47
Hermod's Palace	L48
The Barn House	L49
The Turrest Mansion	L50
Theatre	L51
Boat Yard	L52

TEMPLES

Temple of Set	T1
Temple of Odin	T2
Temple of Freya	T3
Temple ofAegir	T4

GUILDS

Fellowship of Asegeir	G1
Brotherhood of Loki	G2
Guild of Men at Arms	G3
Guild of Mercenaries	G4
Guild of Thieves	G5

Captive-ated

The tools you will need to win *Captive* are divided into Optics and Dev-Scapes and this is what they all do:

Optics

BASIC: An AG Scan that displays how much damage you are inflicting on your opponent during combat.

II: ROUTE FINDER: it is essential for finding your way out of the base after you have destroyed the generators. It will guide you to the next base entrance when you land.

III: THE MAPPER: gives you a map of the area you have covered. Shops=red, ladders and holes=green and doors=yellow.

IV: a Radar.

V: Magna scan guides you to the generators.

VI: Body scan. Shows the state of your droids.

VII: a Vision Corrector that enables you to see where false walls are.

SUPER: Visor – infra-red and will enable you to see in the dark.

DEV-SCAPES

BASIC: Anti-Grav is, unsurprisingly, an anti-gravity device that enables you to walk on the ceiling in flooded areas and makes it easier to shoot floating enemies.

II: the Shield is quite heavy on the power-usage so only use it when you're just about to go into battle.

III: Fire Shield cuts down the amount of damage inflicted by fireballs.

IV: Greaser speeds up the movement of your droids. Unfortunately it doesn't enable you to reload your weapons any faster.

V: Power Sapper drains all the power from your droid's chest. Bad news.

VI: Fixer, this will fix any part of your droid that is not working (at 0 per cent) to some degree of working order.

VII: Re-Charger recharges droids. Useful if the power sockets are scarce.

SUPER: Deflector, you will only need it on the later levels of Mission One. It will deflect any enemy fire. Be careful though because they drain very quickly and are very expensive.

SHORT TIMERS

Some items have very short lives, such as Dev-Scape Supers, if you pick them up you will see a power rating. Carry a few of these items around with you and swap them over when they are running low. Then get them repaired at a shop.

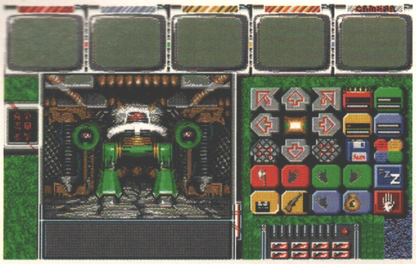
WATCH THE BUG!

There is a bug in most versions of the game that prevents you from finishing Planet Three, Mission Two (Phoopel). A clipboard is in the wrong area, so you can't get to it without opening the wall that it is supposed to open. The clipboard is the type where lines are highlighted on a grid and is number 15099.

To complete the Temple of Loki's task you have to locate and return with Andvari's ring. Ask someone about the ring and they should direct you to the Snakes Inn, in the south of the town.

The noticeboard at the Snakes directs you to the Pawnbrokers, which is in the precinct. Buy the ring there and return.

To move up a level in the Guild of Thieves, steal the collection bowl from the Temple of Set. Bullishness counts here, so simply locate the building in the extreme north of the town – walk in, take the bowl and saunter out casually, without looking



There are ways and means of getting the most from *Captive*. Name calling isn't one of them.

at the security cameras. Odin's lot make your life quite easy. They ask you to go to Gladsheim and collect Hugin the Raven.

You'll find Gladsheim on the South Wall of the town near the west corner. Walk into his pad, go upstairs and take the raven on the table. Now make your way back to the temple and you've completed the task.

There are two ways to enter the Thieves' Guilds building. The first method is through the window – but as this is only available to you if you're already a second level or above thief, you'll have to use the door. Go out through the back door of the Snakes Inn (opposite the south wall), downstairs and to the end of the passage. Turn right and then right again immediately. Follow the passage until you come to two doors. Go through the door to the right, walk through the drinking fountain and then follow the winding passage until you reach the stairs. The guild is upstairs.

There are three main magic items. The best, the Amulet of Defence, is very difficult to find, but you don't need it until the end of the game. Pick up the other two, the Seven League Boots and the Gauntlet Of Power. The boots, that give you turbo running, are in the room just to the south of the East Gate. The Gauntlet Of Power is upstairs in the armoury and makes you a bit harder.

Captive audience

Q I'm having some problems completing the first base in *Captive*. I've got the explosives, but I can't get them to detonate. How do I set them off and what do all those weird devices on sale in the shop do?

A The solution to the first base is printed below. Use of the devices is included later on.

1. Explore the whole base by opening every cupboard and door – don't leave a corner unsearched.

2. Pick up all the sacks of gold because after you destroy an enemy you'll need them.

It's a good idea to pick up and write down all messages so that you can sell them in the shops. Do the same for maps.

3. Use your droids to gain experience points. These can be traded in to raise your other attributes. To start with concentrate on increasing your brawling skills only. This will increase your droids' ability to fight efficiently.

4. On the first base you'll need the use of Optics.

5. To reveal the whereabouts of the next base you have to find the professor and kill him. The best way to do this is to lure him into the doors near the computer and shut them on him.

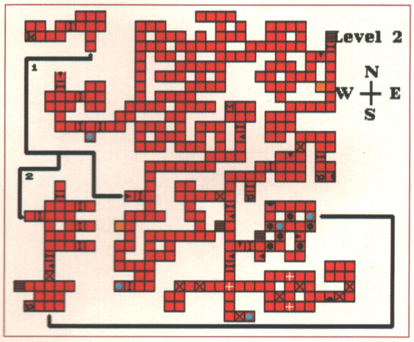
You will then be given the password to enter the computer that will give you the planet probe. Do not leave the base without a password, or you will not be able to find the next planet.

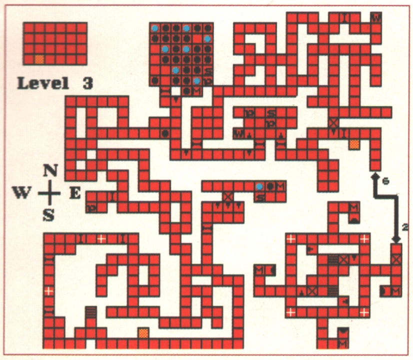
6. Once in possession of the planet probe you can go back and destroy the generators. To do this get the explosives and throw them at the top of the generators. This involves clicking on the explosives so they're in your hand. Now click the mouse at the top of the generators. If you've done it correctly you should hear a clicking sound. Now quickly move back to the green door, open it using the same combination as before and then hop into your ship by pressing the left (up) icon. This will send you up to your orbiting spaceship and you should see a graphic sequence of the base blowing up. You can only leave when the generators have been destroyed and not before. Once back in orbit click the planet probe on the planet map to find the location of the next base.

Eye of the Storm

Q I keep getting lost in the transporters on level two of *Eye of the Beholder*. How do I get out of there?

A Here are the maps for levels two and three:





Corrupted legends

Q I've been having some problems running *Legends of Valour* on my A1200. At certain stages the screen corrupts and I can't enter buildings, pick anything up or indeed, converse with anyone. What's the problem?

A The enhanced chippery of the machine is at fault here. US Gold has produced a new Disk 1

"Me! Me! Me!" It's the attack of the killer egoists in *Eye of the Beholder 2*. The only way to deal with them is to pour reality on their inflated self-opinion.

for the game and this can be obtained by writing to the company, enclosing your old disk. If you can't wait while the letter gets sent off, then hold down both mouse buttons as you boot up. When the options screen appears disable the CPU caches and set the graphics to Original Chipset.

Then if the graphics corrupt during the game, go to the options screen and reduce screen size to minimum and then back up to full again. This should solve the problem.

In good *Stealth*

Q I've just acquired *Operation Stealth* and can't get out of the airport. Can you help?

A We've had quite a few letters from people stuck at the airport. So here's the solution: At the airport go to the newspaper machine and EXAMINE the coin-slot. TAKE the money and USE the coin on the slot. EXAMINE the newspaper and make a note of the country mentioned. Enter the toilets and go into the empty cubicle. OPERATE the case, TAKE the pen, EXAMINE the passport and TAKE notes. OPERATE the calculator and OPERATE the button until the required country is shown. USE the blank passport on the opening, OPERATE the button and OPERATE the case to close it. Leave the cubicle and exit from the toilet. USE the foreign passport (not the American one), SPEAK to the hostess and EXAMINE the telegram. Go left and USE the airline ticket on the guard.

Go left into the baggage room and EXAMINE the baggage until the case for Mr. Martinez is found. TAKE and OPERATE the bag and TAKE out the razor and the pen.

Go right into the toilet, OPERATE the razor and USE the cable on the wall plug. Listen to the message and leave the toilet. USE the foreign passport on the official, then go left and wait on the pavement for a taxi.

Simply the beast

Q I've recently been playing *Eye of the Beholder* and try as I might, I keep dying on the middle levels. Do you have any general tips on character usage and fighting?

A *Eye of the Beholder* is one of those games which is won or lost right at the start. If you don't choose the right characters then you'll end up at dead ends. The general tip here is to make sure that you have one warrior, one mage, one cleric and one thief in your party. This way you'll eventually have all the special powers at your disposal.

As for fighting, most of the other characters you come across will be hostile, so it's vital to adopt a good combat technique. Put the fighter-type characters in positions one and two and any clerics or mages in positions three and four. This way your Fighters will be able to battle on the front line while being backed up by spells cast from the back of the formation. One good technique is to swipe at your opponent, step back and swipe again until the enemy is slain.

Don't be afraid to leg it. It's often easier to close yourself off in a room to cast healing spells than it is to try and heal a player while fighting. For this reason, remember where the last lockable door you passed was and be ready to beat a hasty retreat to it if need be.

Undead creatures are usually pretty easy to beat, providing you have a cleric handy. Use the cleric to turn the creature, then follow it as it runs away, striking it in the back with your weapons, credit cards and spells until it drops.

Giant spiders and mantis warriors are a different kettle of fish completely. These creatures are VERY dangerous.

Spiders are poisonous, and poison is fatal unless you cast a NEUTRALISE POISON spell or find a potion of CUREPOISON.

Slow poison spells will postpone a character's death, but the next time you rest your party, the poisoned character will die in their sleep. Mantis warriors will paralyse a character if they manage a successful strike.

Paralysed characters can't attack or cast spells and will be useless during combat. Get a cleric to cast a REMOVE PARALYSIS spell on them.

With both these creatures, your best method of combat is to cast offensive spells from a distance. If you have to take part in close combat with them, use the swipe and retreat method as detailed previously. Make sure that you don't back into a dead-end though, because this is likely to be certain death.

When you find some writing and a character utters, "What a strange marking to place here," insert a dagger into the crack in the wall and this will open a secret door.

You will find two skeletons on the earlier levels, both of which you must take. Later in the game you will be able to resurrect the dead adventurers, which will then join your party as non-player characters. As they say – six heads are better than four... don't they?

Never fight the rust monsters hand-to-hand. Instead use missile weapons and long-range attacking spells such as MAGIC MISSILE and MELF'S ACID ARROW. Rust monsters don't injure characters when they strike, instead they dissolve a metallic object the character is carrying – usually armour or weaponry.

Lots of hot air

Q I give in. What do you do with the balloon in *Indiana Jones and the Fate of Atlantis*?

A This is just one of the many queries people have about this excellent graphic adventure game from Lucasfilm. So for all your frustrated Atlantis liberators, here's the second half of the solution starting near Algiers:
Fly the balloon to a nomad camp and talk to the nomad. Ask him what he thinks of the map and then follow his directions and land at another camp further away. After you've visited three or four camps, a nomad says you are very close to the site and an X will appear on the map. Land the balloon on the X, walk to the dig-site on the left and walk down the ladder after Sophia has fallen into the hole.

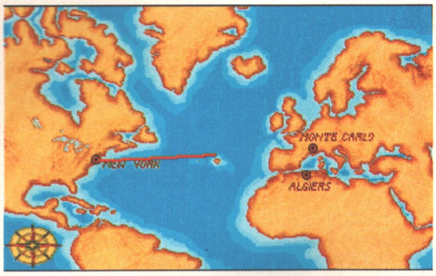
Grope in the dark and pick up the long thing, the blunt wood thing, the clay thing and the sharp wood thing. Walk to the ladder and then to the truck. Open the gas tank, use the hose on the gas tank, use the clay jar on the end of the hose and then go back down the ladder.

On the metal thing at the front of the screen, open the metal cap. Use the gas-filled jar with gas filler-pipe and then push the little metal thing. Use the ship rib with the crumbling wall on the right, use the peg with the mural and use the sunstone on the peg. After Sophia comes out, pick up the sunstone and the peg, open the generator, push the on/off button, pick up the spark plug (ceramic thing) and go back up the ladder. Walk to the truck, use the spark plug on the engine, use the distributer cap on the engine, then use the truck and go to sunny Crete.

Walk up the steps off the left of the screen and then down the path. Walk over the rickety bridge and keep going to the left until you find the surveyor's instrument. Pick it up and then go down to the main dig-site. Enter the lefthand entrance and look at the mural. Near the bull's horn statue there are two piles of stones, push each one to reveal two statues. Use the surveyor's instrument on the bull's head statue, use transit-on-statue, and line up the crosshair with the left horn.

After Indy says "I see the left horn" put the surveyor's instrument on the bull's tail statue and line up with the right horn, an X-marks-the-spot appears. Use the ship rib on the X.

Now leave the dig-site and go back up the path. Walk to the right and use the sunstone on the stone pedestal and then use the moonstone on the sunstone. Look at the stones, position the rising sun and the new moon by the horns at the top and press the spindle. Pick up the stone and enter the secret



Fly to Monte Carlo to hold a seance with a chap in a brown suit, that part of Indy's fun life.

At this point you decide on playing the team game or the single game.

That is indeed Mr Trottier. You can tell him by his large nose, dapper suit and name badge.

entrance. Pick up two statue heads on the shelf. Go through the left-hand of the two doors at the back of the room, use the whip on the statue head and walk on to the slab in the middle.

Pick up the staff and the worldstone and look at the waterfall. Use the chain and go through the door on the left, avoiding the elevator. Walk through the door by the statue heads, up the stairs and through to the right until you reach the bottom of the stone shaft. Use the staff in the statue's mouth. Pick up the gold box and put the beads in the box. Go back down the first elevator to where you left Sophia. Walk through the door at the back. Look at the hole above the gate and talk to Sophia. Walk through the door at the back. Look at the hole above the gate and talk to Sophia. Tell her she wouldn't fit, that it's a narrow passage and then that she'll fit through with luck. Walk through the doorway and then up the stairs. Use the amber fish, talk to Sophia and ask her to give you the necklace. Tell her you need to hide it, do as she says and then tell her that you want to put it in the gold box.

Go into the next room and use the amber fish. Use the ship rib on the wall, open the door and walk through. Walk through the door on the right use the sunstone on the spindle, then the moonstone and finally the worldstone. Line up the rising sun with the horns, and press the spindle. Walk through the door and when Kerner appears, don't argue just give him the stones. Use the ship rib on the rocks to the right and then walk down to the submarine.

Open the hatch and fight the captain. Inside the sub, use the big lever, then use the intercom and tell the crew to go to the bow. Walk to the lower deck and go to the left. Pick up cold cuts, bread and the porcelain mug, and go to the left. Push the switch, go back into the sub, and then push the lever. Walk to the left, open the trapdoor, walk to the right along the bottom and use the mug on the battery acid. Walk to the right again, talk to Sophia and then go up through the trapdoor and down the ladder behind the guard. Walk up to the guard and say "I'm the staff archaeologist. Got any buckets?" Pick up the plunger and go back to the conning-tower. Use the big lever and then use the plunger on the broken lever. Use the intercom to tell the crew to go to the stern torpedo bay.

Go down to the lower deck and walk to the right. Open the trapdoor above and to the right of Kerner, go down and use the mug on the strong box. Go back to where Sophia is and use the key on the padlocked rubber control. Push the wheel and steer the submarine into the hole in the stones of the left-most screen.

Walk to the right of the screen to the stone rubble and pick up the wood thing in the bottom left corner of the screen. Use the ladder with the rubble and walk up to the stone thing. Touch the stone thing, open it, pick up the metal rod and use a bead in the rod. Pick up the ladder and use the three stones on the spindle. Look at the world-stone and position the rising sun at the bottom and the waning moon and city in line with darkness on the right hand side. Push the spindle, use a bead in the sentry statue, pick up the stones and go through the door.

Go around the outer corridor to the bottom right-hand side and pick up the rib-cage from the skeleton. Visit each room in turn, using the grates as short cuts where possible and make sure you defeat at least one guard to get his rations. Pick up the bronze spoked wheel in the room, which can only be reached by crawling through the grates. When you

Haggling for some red lipstick is the only way to get yourself a balloon ride.

fin Sophia's prison cell, put a bead in the sentry statue. In the statue room put the ladder on the hole and walk across to pick up the cup. Go to the crab room, put the rations in the rib-cage and put the rib-cage in the pool. Pick it up when a crab is trapped. In the lava room, use the cup on the pedestal and the statue head on the plaque.

After you have visited all the rooms you should have a bronze gear, a bronze wheel, a cup of lava and an eel sculpture. Go to the machine room, put the bronze wheel on the right-hand peg and tip the lava in the funnel at the top. Pick up the beads and go back to the lava room to get more lava. Keep making beads until you are unable to carry any more and then pick up the spoked wheel and go to the sentry room. Use a bead in the eel sculpture and then in the fish statue. Go through the door, go into the dungeon where Sophia is held and pick up the statue part. Go to the canal. Walk to the canal and then to the raft and put a bead in the crab's mouth. Float to the right-hand gate and use the sunstone on the spindle. Float through, use the moonstone on the next spindle, float through and use the worldstone on the next two spindles. Float to the pile of bones, go through the door at the top of the steps and pick

Using the eel-like thing on the nose on the wall reveal a secret chamber.

up the gear. Go back to the raft, use the moonstone on the spindle, float through and keep going until you reach the room with the archway. Go through the archway.

Use the chain with the bronze loop on the door, and the other chain with the statue arm. Use the ladder on the sentry statue and open the chest plate. Put the spoked wheel and the statue part on the middle peg, the crescent gear on the right-hand pegs, the round gear on the bottom-left peg and then put a bead in the centre. Pick up the hinge pin, go back to the dungeon and give Sophia the Meltonmowbray cheese and the hinge pin. Open the cage, tell Sophia you have a cunning plan and tell her to prop it open with the salami and the pin. Open the cage, pick up the hinge pin, the salami and the 1972 Blue Peter annual and go on the raft to the door you open with the peculiar mechanism.

Follow Sophia, Helmut and Lionel into the room with the lava pit. Walk to the far left, pick up the sceptre, walk back to the lava pit and look at Sophia in a funny way. Put a bead in the necklace's mouth and when Sophia holds it away from her body use the gold box on it. Go back to the hallway, walk to the left and go through the door on the right. Walk up to the slots on the machine, use the hinge pin in the left slot and the sceptre in the right slot. Put a bead in the mouth and push both levers. While moving, pick up the left-hand lever, put it in the middle slot and push it up. Walk down to the centre of the screen and then down to the right-hand side.

Take the right door, then left, middle, left, right and then left, not forgetting to shake it all about. Before you go over the steps to the right, take note of the position of the sun, moon and volcano on the wall, go to the right and take the left door at the top. Walk across the lava and if your path is blocked, go back to the shore and try to cross again. When you succeed, walk down the steps to the right and into the centre. Put the stones on the spindle and the shopping on the work-surface.

Position the stones in the places shown by the markings on the wall - it might be midday sun at the south each, and volcano and full moon to the east. Now push the spindle. Talk to the Germans and Kerner will go on to the platform first. When the professor tries to make you go on, tell him he'd make a better god, tell him about Plato's error and then thatat Plato and Kerner got it wrong. The professor then lets you decide how many beads to use. Say "Will you stop with the bead-talk," and then tell him about all the things you'll do when you're a god. The professor pushes you aside and that, dear adventurer is the end.

Continued on page 42

The key to the Lost Dialogue of Plato is actually hidden in Indy's college, the dear old Alma Mater.

Another world war

Q I've been trying in vain to get through the caves in the middle of Delphine's *Another World* without success. Can you help?

A We've had lots of people who are stuck in the middle of this game, writing to us. For you lost other–worlders, here are the solutions from the caves onwards:

SECTION 3: THE CAVES – CODE CCAL

Walk right and drop down the shaft, then drop down the next hole on the right. Walk off the right-hand side of the T-shaped rock and continue to the right. Jump off the ledge, over the spikes and run halfway on to the next screen. Quickly run a short way back to the left, then judge the timing to get safely past the first rock. Wait until you can rush under the second rockfall, then run to the next screen until you are hidden behind the big rock.

Wait until the next two rocks hit the floor at the same time, then run to the middle of the screen. Watch the timing of the next rock, then run underneath. Remember to look out for the tentacle monster and run left about halfway up the slope. Turn around and get a big beam ready. When the tentacle monster comes back down, blast it to bits. Go right, run past the tentacles and jump over the mouths that are in the floor.

Head to the right, kill all the tentacles with big beams and jump over the mouths. When you reach the shaft, do two small jumps to get past the hole and the mouth, then run right until you reach a wall. Blast the wall away then head back to the left, watching out for mouths and tentacles, until you reach the falling rocks once more.

Run up the slope and continue to the top of the slope on the next screen. Turn off to the right and fire at the pterodactyl. He should then wake up and start flying around.

Go left and jump across onto the stalactites. Keep jumping from one to the next until you are on the one next to the tentacle monster. When the pterodactyl is drawn up by the creature, jump across to the remaining stalactites and jump off the left-hand side of the screen. You should now be on the top of the T-shaped rock. Run off the lefthand side, then face the right and blow away the support. Run up the slope to the upper cave.

Go to the right, jumping all the holes until you reach a cave with a load of water above. Stand on the far left and blow the supporting rocks away. Quickly run to the left, jumping the holes as you go (tricky) until you are standing on the stone panel to the left. The water should blast you up to safety. Run up the slope to the right and blow the door away, then run right past the waterfall.

SECTION 4: THE TEMPLE – CODE KCIJ

You should now be in a room with a tunnel beneath, where your friend is crawling. Walk down the steps on the next screen and put up a shield. Blast the guard who appears then run right. Jump over the stairwell and continue right until you reach three security doors with a guard behind them. Walk forward but DON'T open the doors! Put up a shield, then take a step towards the doors to open them. As soon as the guard launches a bomb, walk left so that the doors close. The bomb will bounce off the doors and kill the guard. Once he's dead, run to the right and blast the door away.

Go right and up through the teleport. Recharge your gun in the chamber, then go back through the teleport and off to the right. Crouch down and wait. Watch the reflection in the glass orb, then wait until the guard has stopped walking and is directly beneath the orb. Shoot the rope from a crouch and listen to make sure that it hits him. If it doesn't, he'll start shooting at you, so go left and re-enter the screen to try again.

Go back to the left and go down the first set of steps. Drop through the teleport and face left. Don't, whatever you do, go right! Put up a shield and kill the guard who appears, then head left until you reach a large chamber with steps on the left. Go to the top of the steps and face right. Shoot the rope so that the lights fall down, then go back to the right. Continue right under the teleport, at which point a guard will come on and punch you in the face. When he picks you up and starts talking, push left and press fire. He will then drop you, so run left and pull down to perform a stunt roll and pick up the gun. Keep pulling down and press fire when you get into a crouch to kill the guard.

Run to the next screen until you are in the second archway. Put up a shield to your left then quickly put one up to the right. Blast both the guards (this isn't easy, so be patient), then go right to the pool of water. Swim down to the bottom of the pit and go left into the cave. Keep swimming left until you reach a cave with two shafts above. Swim up the left-hand shaft to get some air, then swim down to the lower shaft into another cave. Climb on to the ledge on the right and shoot the power cable. Now swim back up to the top of the pit where you dived in. Go to the right and climb out of the water.

Go right, past the concussed guard and drop down the shaft. As soon as you hit the floor, face right and blast the door away, then leg it! Keep running through the doors until you reach a dead end. Face left and put up a shield, making sure that it's to the left of the trap-door in the ceiling. Blast the guards who come in and make sure your shield doesn't run out. Eventually, your mate will reach down and grab you, pulling you to safety.

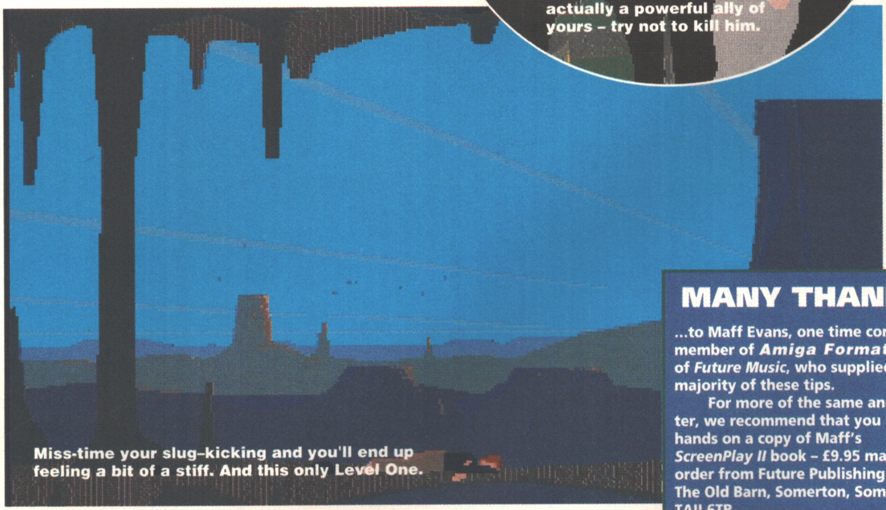
When you are in the upper room, wait for the ceiling to crumble so that the rocks fall on the guards below, then go right into the black tank. After the tank has rolled out into the arena, a window will appear in the top left of the screen. Hit the bottom button to call up more controls, then hit the bottom left button, then the top green button to the left of the red one. The escape pods will then be launched for you.

SECTION 5: THE TOWER – CODE LFEK

As soon as the pod has landed and you jump out, run quickly to the right. After you come out of the doorway, put up a shield and kill the four guards that come on, then run to the right. Keep running right, past the window that your friend bursts through, until the ground is blown from beneath you. A guard will catch you and fling you against the wall. After he has kicked you on to the next screen, quickly crawl right by pushing the joystick to the right. Don't touch the fire-button yet! After a struggle, the guard will throw your friend off the ledge, leaving him dangling by his fingertips.

When the guard reaches the middle of the screen, press fire and push right to pull the lever. The guard will then be destroyed. Press fire and right to pull another lever, then quickly crawl to the left. When you reach the shaft of light you will be transported to the roof and pass out with exhaustion. Your friend will then appear and whisk you off to safety on the back of a giant prehistoric bird.

That large craniumed chap is actually a powerful ally of yours – try not to kill him.



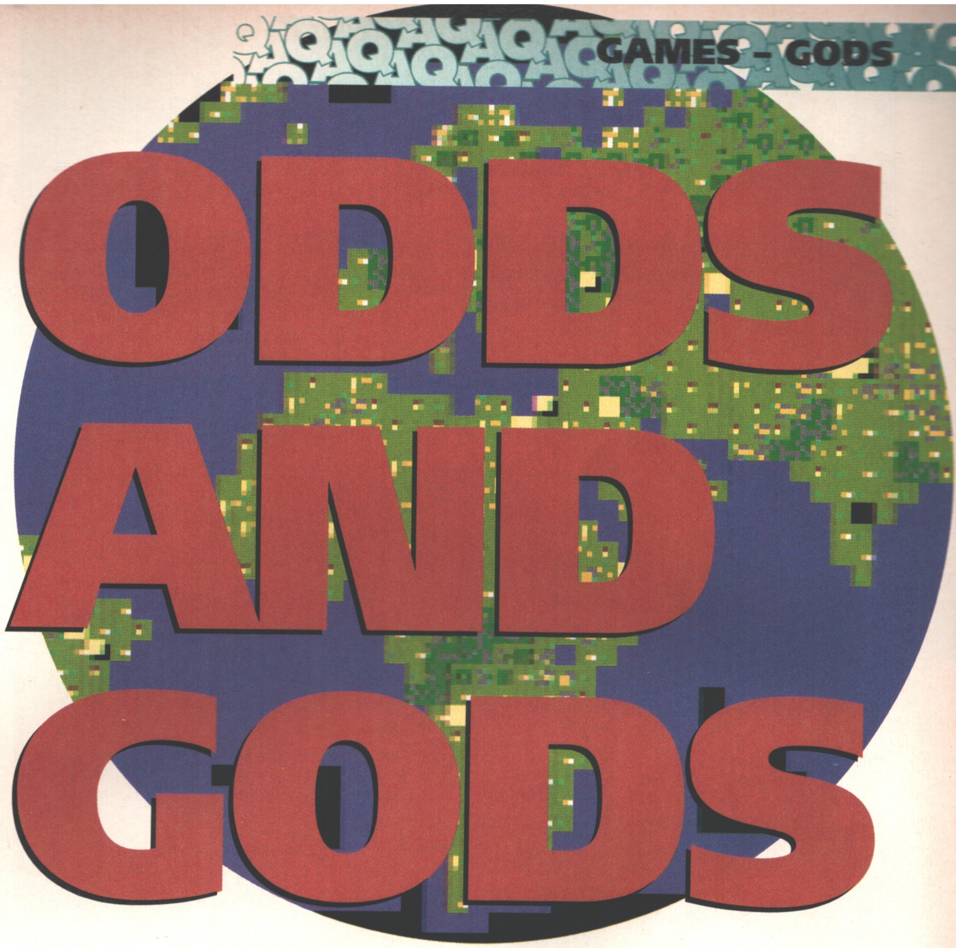
Miss-time your slug-kicking and you'll end up feeling a bit of a stiff. And this only Level One.

MANY THANKS

...to Maff Evans, one time core member of *Amiga Format*, no of *Future Music*, who supplied th majority of these tips.

For more of the same and be ter, we recommend that you lay hands on a copy of Maff's *ScreenPlay II* book – £9.95 mail order from Future Publishing Ltd, The Old Barn, Somerton, Somerse TA11 6TB.

ODDS AND GODS



It can be a real drag being a deity, particularly when your subjects won't do what you want them to. Our god squad came up with the answers to your questions about *Damocles, Civilisation, Mega-lo-Mania* and other *Format Gold*-winning 'god' games

Civilised society

Q I'm failing miserably at civilising my subjects in *Civilisation.* Is there a tactic I can use at the beginning of the game to stop the other leaders giving me a kicking?

A We've found that the most enjoyable way to play *Civilisation* is on Warlord level with four civilisations for competition. Make sure that you pick your leader wisely because they all have different qualities. If you're planning on an expansionist style of play then Genghis Khan would be a smart choice. Conversely if you'd like to be a benevolent kind of leader then go for Mao Tse-Tung.

Whichever leader you go for, try to get the *Civilisation Advances Chart* because this can help you build advanced units quickly. In the early years it's advisable to concentrate on advances such as the catapult as this is stronger than any enemy units.

Your earliest units should be selected for defensive, offensive and mobility factors. Defend your home city first but use more mobile units to open up the frontiers of your civilisation. Your first two militia or other military units should be used to defend your city. Fortify the units on the city because these can only be destroyed one at a time. If you leave them elsewhere they can be destroyed in one move.

Whenever one of your units becomes old replace it with another unit. It's pointless paying for and feeding an older unit when more capable ones are available. For example, you should replace the Cavalry unit for a Knight unit as soon as possible.

All over the world there are minor tribes, just waiting to reveal secrets. Move on to them and you can uncover wealth, wisdom, friendly tribes or angry barbarians. As you don't know what awaits you, you should move on to these squares only with a military unit with a high defensive factor.

As the technology becomes available, you'll be able to set sail, initially in Triremes. Remember that these are not deep water vessels and they can be lost at sea very easily. You should carry a diplomat, a settler and a strong military unit on the ship because you can then deal with any situation that might arise, be it barbarians (military unit), other civilisations (diplomat) or empty continents (settlers).

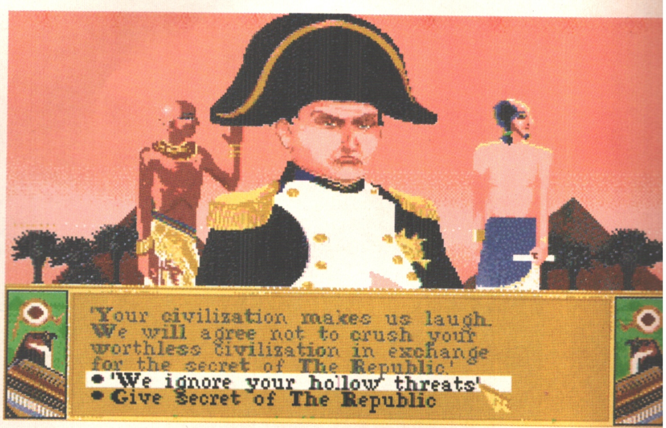
When a neighbouring civilisation becomes a threat you will need to open hostilities. However, before you do this it's a good idea to see how well equipped they are. To this end, have a look at their technology level by establishing an embassy in the enemy city. If the enemy looks a bit hard, wait until you're more evenly matched before you attempt to scrap with them. To do this concentrate on research, exchanging technologies with friendly civilisations, building the Great Library and, of course, using a diplomat to steal technology.

During a time of war, don't be afraid to take a breather because if you don't you run the risk of exhausting your people's willingness to fight and depleting your valuable resources. Every now and then the enemy will offer you peace, you can use this quiet period to rebuild your combat forces, replenish your treasury and increase the public's moral support for your undertaking.

Make sure that in this respite you place your war ships outside the enemy's harbours, deploy sentries along land borders and fortify your units around enemy cities. Don't forget to use your diplomats to spy and sabotage missions as soon as you start fighting again.

At some point in the game you will be faced with the nuclear dilemma. Although the enemy won't usually resort to nuclear weapons, it's a good idea to build an SDI (Strategic Defence Initiative) on your capital city. Using nuclear weapons hastens global warming and polar melt-down, so if you do use nuclear weapons, make sure that you have got plenty of settler units to clean up afterwards.

There are two ways to win *Civilisation*, either defeat all other civilisations or win the space race to Alpha Centauri. To win the space race you must complete the Apollo program to enable you to build the three spaceship parts: SS Structure, SS Module and SS Component. The idea is to build a ship capable of carrying as many colonists as possible, yet still capable of travelling at a reasonable speed and with a reasonable probability of success. Make sure that you install two propulsion units for every complete colonist package (habitation, life support, solar power modules) which you intend to launch. Losing your capital city will bring the interstellar program to a quick close so guard it well. Keep an eye on the clock, because you must reach Alpha Centauri before your reign expires.



Here's that chap Napoleon modelling an exceptionally large hat. He's just one of the stars of *Civilisation*

If another city launches its spaceship before you do, you should make a mad dash for their capital in the hope of capturing it before the starship reaches its destination. And finally, in some of the early versions of the game there's a cheat that enables you to get a complete world map. Just press SHIFT 1234567890. This feature was discontinued after the first release, but it's still worth trying it just in case.

Continued on page 44

THE OBJECTS OF DAMOCLES

Have a look in this cupboard and who knows what you might find to help you on your way in *Damocles*

Q I've now finished Damocles, but I can't help feeling that I've missed out on lots of different bits of the game. Could you print all different objects and where they're located in the game?

A What, you mean something like this:

ITEM	PLANET/ISLAND	PLANET CO-ORDS	SECTOR CO-ORDS	FLOOR
25,000,000 ECU	Eris/Capital City	018-284	15-12	B
ACME U'sal Suit	Dion/Birmingham Island	795-575	09-14	–
Air Conditioner	Eris/Capital City	017-283	09-08	1st
Amplifier	Cyclopes/IDI Centre	851-602	02-02	–
Anti-grav	Eris/Capital City	017-281	09-02	B
Antique Clock	Eris/Key Island	625-126	09-08	1st
Antique Sextant	Mentor/Mentor Wayst'n	688-316	06-05	–
Answerphone	Dion/Birmingham Island	793-573	02-11	1st
Author's Chair	Dion/Birmingham Island	796-573	14-13	–
Author's Computer	Dion/Birmingham Island	796-573	14-13	–
A-Z Computer	Eris/Capital City	018-284	12-14	1st
Bath	Dion/Birmingham Island	795-570	09-00	G
Bathroom Scales	Clotho/Clotho New Town	591-323	04-00	B
Battery	Perseus	936-450	05-02	–
Blue Beacon	Mentor/Mentor Wayst'n	687-315	02-01	–
Book	Eris/Capital City	018-284	13-15	–
Bookcase	Solon/Penn College	959-590	01-01	B
Bottle of Wine	Eris/Snow Island	008-508	06-04	G
Briefcase	Vesta	264-326	004-06	3rd
CB Rig	Mentor/Mentor Wayst'n	688-135	04-03	–
Clipboard	Eris/Snow Island	007-507	03-00	–
Comms Console	Theon/Theon Base	622-065	03-01	–
Comms Console	Acheron/Acheron Retreat	834-322	01-01	–
Cooker	Gaea/Chaldea Metropolis	063-437	04-01	1st
Cooker	Gaea/Ur City	126-687	09-03	–
Cornflakes	Clotho	590-323	02-01	G
Cupboard (Trigger 2)	Eris/Snow Island	007-507	03-00	–
Davy Jones' Locker	Perseus	936-450	05-02	–
Explosive 1	Eris/Bare Island	750-375	06-05	3rd
Explosive 2	Eris/Bare Island	750-375	06-05	3rd
Explosive 3	Eris/Bare Island	750-375	06-05	3rd
Explosive 4	Eris/Snow Island	008-508	06-04	B
Explosive 5	Dion/Dion North	809-586	00-05	–
Explosive 6	Gaea/Ur City	125-687	01-02	–
Explosive 7	Gaea/Ur City	125-687	05-02	–
Explosive 8	Gaea/Vulcan Island	151-314	08-08	–
Explosive 9	Theon/Theon Base	622-064	02-03	–
Fax Gaea/Ur City	125-687	07-01		–
Filofax	Metis	616-511	00-06	9th
Filing Cabinet	Dion/Birmingham Island	793-211	02-11	1st
Fish Tank	Bacchus	405-637	01-02	G
Fireplace	Clotho/Clotho New Town	590-323	01-01	2nd
Fridge	Clotho/Clotho New TOwn	590-323	02-01	2nd
Geiger Counter	Eris/Bare Island	750-375	07-04	9th
Ghettoblaster	Logos	317-896	06-03	–
G'house Effect	Dion/Dion North	809-567	00-03	–
Gold	Gaea/Chaldea Metropolis	063-438	06-06	B
Gold	Solon/Penn College	969-590	01-01	B
Gold	Tolsa/Eris Bank Repository	667-663	02-01	–
Gold	Tolsa/Eris Bank Repository	667-633	02-01	–
Gold	Tolsa/Eris Bank Repository	667-633	02-01	–
Gold	Tolsa/Eris Bank Repository	667-633	02-01	–
Hammer	Dion/Dion North	809-586	01-04	–
Heat Resis'nt Suit	Eris/Capital City	018-282	14-05	–
Hi-Fi (Trigger 3)	Gaea/Chaldea Metropolis	063-438	05-06	–
King Size Spanner	Eris/Capital City	016-283	04-11	–
Kitchen Sink	Gaea/Chaldea Metropolis	063-437	04-01	G
Lottery Ticket	Clotho/Clotho New Town	590-323	01-00	2nd

Continued on page 46

Mega maps

Q I recently discovered Sensible Software's excellent god-game *Mega-lo-Mania*. Do you have any advice for up and coming despots?

A In order to make the right inventions you need to know where particular elements are. To this end, study the maps (pictured right) to find the right sector and make it your starting position.

If you invent something and the designer says that it's, "Ergonomically Terrific", it means that this is the perfect way to design it which reduces the design time by half. Note down the sector that it was in and look under Blueprints for the design, where you will see a hand shaping an OK symbol. Note its components and if you see a sector later in the game with the same elements, you will know that this item can be churned out in next to no time.

Sectors with a lot of gatherable elements enable you to quickly produce weapons for a surprise attack. However, the sectors with mostly gatherable elements are not as desirable if the game has gone on to the later stages, in which case you should try to find a sector with more sophisticated elements.

Whenever you mine a new seam it's best to check the Design menu first in case a new design has become available. If a seam has been totally used up, making a design impossible, so bin the design on the Blueprints menu. You may still be able to produce it with the elements you have left.

Don't be too disheartened if designs aren't available to you straight away. If you want, for example, an army weapon, but you only have shields and building weapons, these may shift you up a tech-level, which will make another element available to you. This may lead to the design you require.

To produce designs that can be manufactured speedily, try making as much as possible before you start mining, since inventions made from gatherables save time and labour. Always wait until clocks have fully ticked away before changing the factory over to production of a new object. Likewise always think twice when designing, since aborting a design when you are half way through it wastes time.

Dragon spell check

Q I'm not having much joy conquering the surrounding villages and town in *Dragons Breath*. How do I proceed?

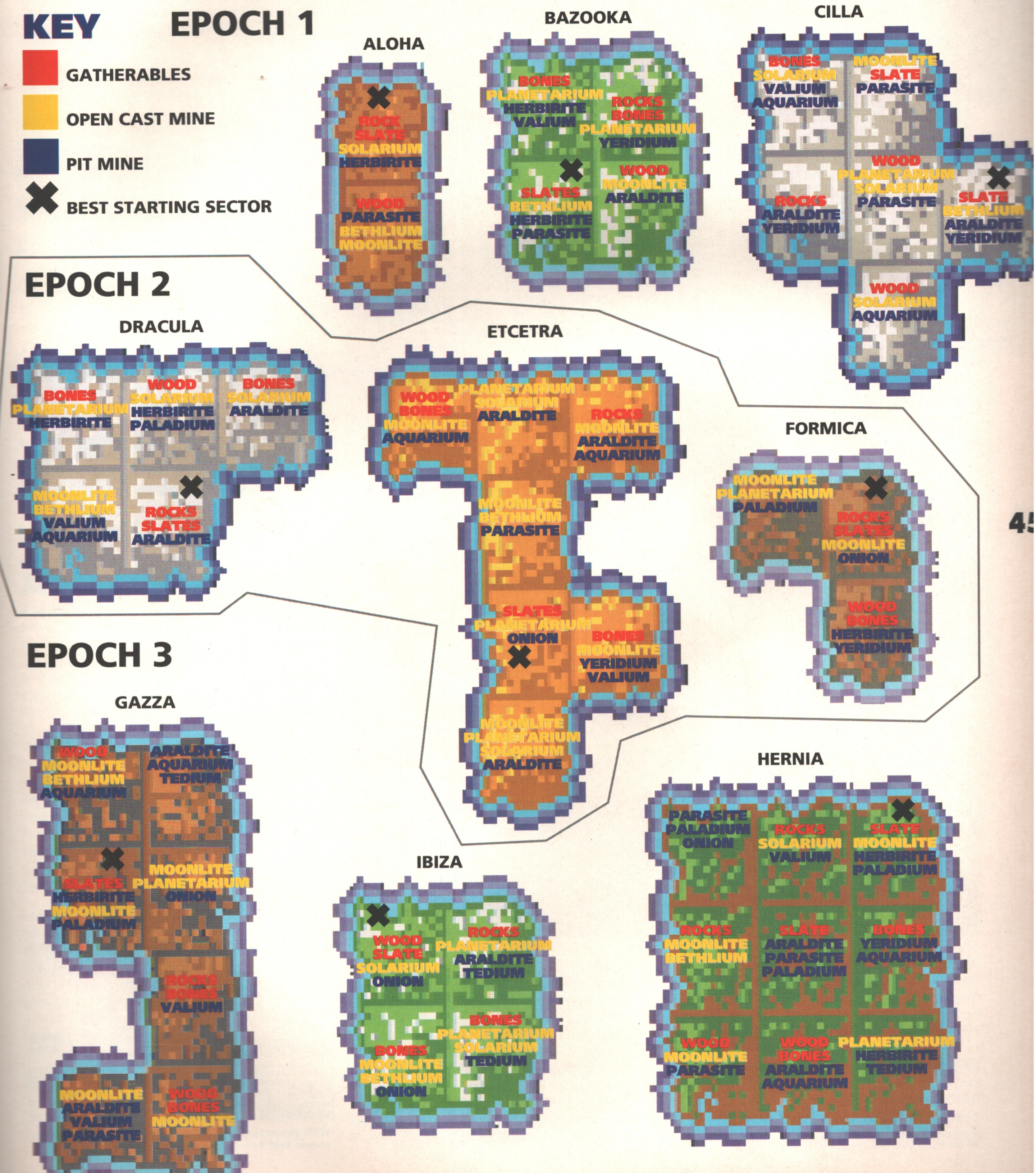
A First off, you've got to tune up your dragon. To do this cast the following spell:
2 x Rasgon, grind and heat.
2 x Churl, normal and heat.
3 x Arolig, normal and heat – one quarter condense.
2 x Mionaca, grind and condense.
7 x Haloras, cut and condense.
7 x Igele, normal and heat.
2 x Churl, normal and heat.

This nifty spell makes your dragon virtually invincible by raising all its characteristics up to or close to maximum. Now you can use this dragon to start conquering.

Choose a town with a population of 1,000 or more, ignore the training missions, set your dragon on medium zeal and go for the Conquer and Keep mission and then go to the castle screen. Put two eggs on full heat in the incubation room and then go to the library to record the on-going battles. In

Continued on page 46

FIND YOUR WAY AROUND MEGA-LO-MANIA



When visiting Eris, in *Damocles*, be sure to pick up the wine keg and the cornflakes, because I am too stupid to do it myself.

Memopad	Eris/Bare Island	750-575	06-05	4th
Museum Guide	Cronus	626-463	05-05	–
Novogen Safe	Dion/Birmingham Island	793-211	02-11	1st
Nova Bomb	Gaea/Ur City	264-326	09-02	B
Photocopier	Logos	316-896	04-02	3rd
Pressure Suit	Mentor/Mentor Wayst'n	687-316	04-04	–
Reading Glasses	Lucan	024-208	00-07	–
Receipt	Gaea/Chaldea Metropolis	063-438	06-06	1st
Red Beacon Locator	Vesta/Politburo City	264-325	04-04	–
Red Herring	Icarus	152-417	02-01	–
Rubbish Bin	Dion/Birmingham Island	793-573	02-11	G
Rug	Dion/Birmingham Island	793-573	02-12	1st
Scroll	Vesta/Politburo City	264-326	04-06	–
Shopping Bag	Atropos	009-304	01-01	1st
Shower	Gaea/Ur City	125-687	01-03	G
Sideboard	Gaea/Ur City	125-687	07-01	–
Standard Lamp	Eris/Velose City	375-437	04-05	1st
Storage Boxes	Eris/Snow Island	007-507	03-00	–
Sun Glasses	Clotho/Clotho New Town	590-323	02-01	4th
Sun Shade	Eris/Capital City	018-282	12-04	–
Table Lamp	Clotho/Clotho New Town	590-323	01-01	–
Television	Eris/Velose City	375-437	04-01	9th
Thermal Undies	Eris/Bare Island	750-575	06-06	4th
Timed Detonator	Eris/Bare Island	750-375	06-02	–
Top Secret File	Eris/Bare Island	750-575	06-05	4th
Towel Rail	Dion/Birmingham Island	795-570	09-00	G
TV Control	Eris/Velose City	375-438	03-07	B
Valuable Piano	Gaea/Ur City	264-326	09-02	B
Video Player	Eris/Velose City	375-437	04-01	2nd
Wall Clock	Gaea/Chaldea Metropolis	063-437	04-01	2nd
Wall Phone	Metis	618-511	05-06	–
Wardrobe	Gaea/Chaldea Metropolis	063-437	04-01	G
Washbasin (Trig 4)	Metis	618-511	05-06	–
Washing Machine	Dion/Birmingham Island	793-571	02-02	G
Welsh Dresser	Mentor/Mentor Wayst'n	688-316	05-04	–
Wine Keg	Eris/Snow Island	008-508	06-04	B

Month Two go to the map screen and click on the captured town. When the picture of the town appears, click on the magic symbol and cast the following spell in the magic room:
3 x Tius, normal and heat.
4 x Churl, normal and heat.
2 x Arcus, grind and condense.
1 x Curl, normal and heat.
This increases the population of the town. Go back to the city and set the taxes high, then check the library to see if your dragon is guarding a piece of the talisman. If he is, make a note of the town or city and end your turn. Over the subsequent months leave your city or town to its own devices and it should keep on growing, then start producing new villages. If any of your towns or villages get attacked then dispatch a dragon to destroy them. Buy ingredients from the traders if you can afford them, particularly Churl. Every time you conquer a town or village, cast the population spell. Bear in mind that attacking enemy villages or towns will deprive them of their tax revenue, so it's worth doing.

You war it well

Q **Although I think that *Historyline 1914-1918* is one of the best strategy games ever for the Amiga, I've been floundering about a bit trying to keep Europe from complete destruction. Have you any general advice on the game?**

A You'll find life is easier if when you're using the artillery you remember that the light artillery has a very short range and that the medium and heavy artillery can only shoot when stationary. The best way to combine the various artillery units is in the following manner.

Let's say that you have a very strong heavy artillery and you know that (a) the enemy just waits for this unit to move to attack it (b) your heavy artillery gets into range of the enemy's heavy artillery. Move some light artillery next to your heavy units and wait until the next round. As the heavy artillery moves just one square a go, you may have to move the light artillery a long way ahead of it. The advantage of this is that when your heavy artillery isn't able to react in the next round, your light artillery is and this covers the range in front of it. There may still be some damage but this shouldn't be too heavy because the light artillery is able to destroy dangerous units and direct the enemy fire on itself.

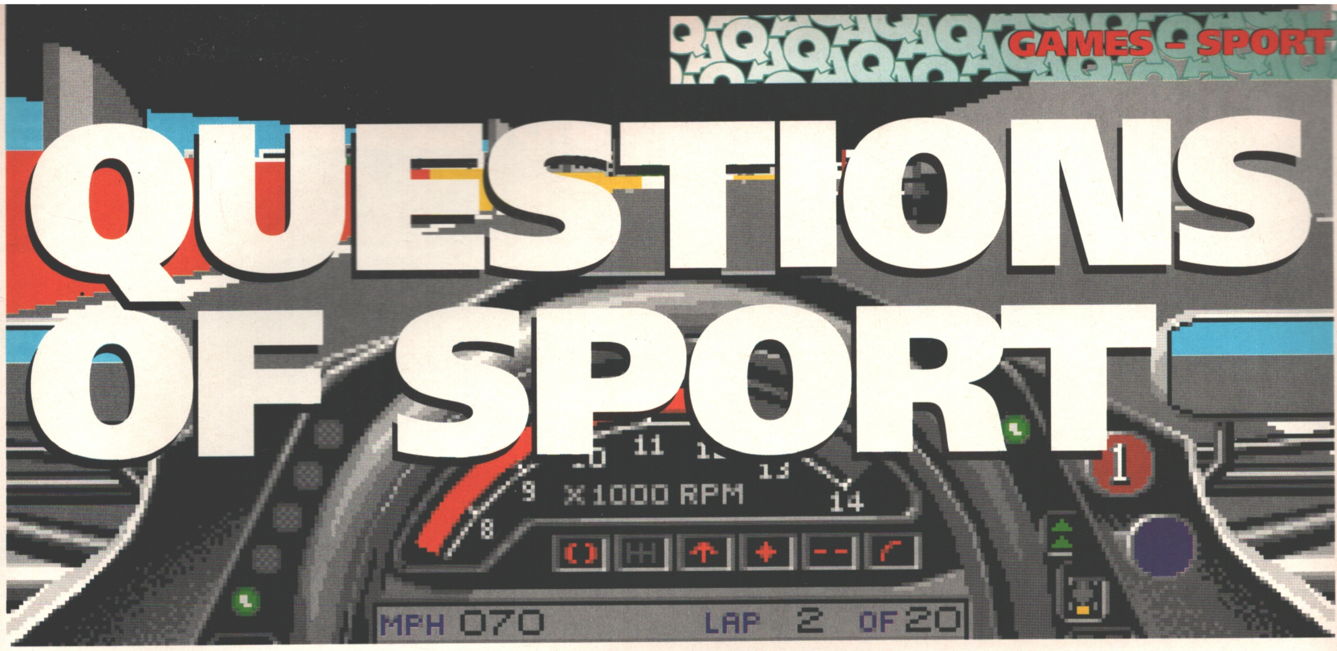
One of the easiest mistakes to make is to produce new units, yet still let the experienced outfits battle it out on the front line. Save your energy and spend it mainly on repairing damaged units. Really experienced units, such as the Elite Infantry, can withstand attack from almost every enemy tank for at east one or two rounds. Also try to watch out for the bunkers. These are difficult to take, even with air support. It's all too easy to lose your best troops when attacking enemy headquarters, just because you overlook the bunkers.

Planes are possibly the most important units in this game, so make sure that producing units are constantly manufacturing them. Destroy the anti-aircraft units first. Although this will lead to heavy plane losses at first, it's more important to have a properly functioning airforce than a strong infantry.

If all else fails and defeat looms large, try the following tactics. Collect all your remaining units together and make sure that you have more than one infantry unit. Set one of these infantry divisions to the front and one to the rear. Now when you attack, the computer will try to destroy the infantry first, so you can position your artillery in a suitable position and blow them to kingdom come.

The best way to win is to hold the positions you have at the beginning of the game. Keep weakening the enemy troops and then attack. You'll know that you're going to win because later in the game the enemy will only have half your strength.

With the rather nifty *Historyline* you can visit the shops and see arch-dukes get blown away.



QUESTIONS OF SPORT

If you want to know what to steer clear of in *Indianapolis 500*, if you're a bit green when it comes to Microprose *Golf*, or if you just want to improve your chances of scoring, in *Sensible Soccer* that is, then we have the answers to your sporting questions

The right formula

Q Having been impressed with the good reviews for the game, I purchased Microprose' *Formula One Grand Prix*. However, I've found the game to be impossibly hard and terribly frustrating. Can you help?

A Sorry to say it, but *F1 Grand Prix* is one of those games that takes a lot of practice (which is another reason for it having been so popular for so long – all the time it takes to get the hang of it, pays back in dividends of great gameplay).

It's not realistic to expect yourself to start winning races as soon as you load the game, you're just going to have to learn how to control the car. You bought a simulation of a racing car, not a dodgem.

Overall, the longer the race, the more realistic the result. Running the whole race gives you far more chance to show your full potential, while 50 per cent or less evens things up considerably and moves it all in favour of the computer-controlled cars. If you fancy livening things up a bit, then type in real driver's names and racing teams into the editor and save them to disk.

It adds considerably to the realism if you race against a Senna or a Mansell.

Practice the circuits. By following the best racing line tutor and using the other learning facilities built into the game you can learn how to take corners and thus where the best overtaking positions are.

Similarly, studying the descriptions of the circuits in the manual will enable you to build up a detailed knowledge of the track.

If you run two cars at the same time you get twice the chance of winning.

There's also the added bonus that you get a 15 second rest between car changeovers, which is most welcome in a two-hour race.

The longer the practice the better. Setting up your car correctly is half the secret of winning a race. The longer you practise, the fewer cars there will be

At the end of the race, it's not the winning that counts, but the amount of sponsorship you get.

on the track and the more chance you have to experiment with the car.

Try watching what's happening in accelerated time out of the 3D. After a good qualifying run, sit back and watch how the other cars deal with the slower cars, bends and chicanes.

Take care when you go past the pit lane because cars may be slowing down to enter or accelerating to leave it.

As for tyres, you should go for Ds on races under 20 laps, Cs for slow circuits and long races and As and Bs when you're an experienced driver.

If you're a beginner then choose the Cs, because they won't provide you with too hairy a race. If you do spin off then select spin gear. If you want to get a serious advantage then pick the best cars.

This means choosing McLaren, Williams or Ferrari, rather than a Jordan or Coloni. Once you get more accomplished, then try racing with one of the inferior cars and you begin to understand what the real drivers are up against. If you really, really want to win then select all the cars.

Oh, and before we forget, do make sure to use a sturdy joystick for the game. Some races will require about 3,000 gear changes and this can lay waste to a flimsy stick. Oh, and finally, try nudging cars off the track. A quick prod up the rear tyre can quickly send a car skidding on to the grass and out of the race. A really good driver will nudge a back marker into the path of one of the better cars.

Indi deep end

Q I understand that it's not just driving skill that wins *Indianapolis 500*, it's also mechanics – so what's the best set-up for my car ?

A First off, use the Penske Chevrolet as this is the most versatile car on offer. Stock this up with 10 gallons of fuel for qualifying and then a full tank for the actual race.

For the qualifying laps put the rear wing on its top notch and the front notch one lower. This set-up maximises speed on the straights. In the full race take both wings down by 3-5 notches and keep the front wing one notch below the rear.

For the tyres use softs on the left and mediums on the right for qualifying. When you actually come to race you might want to switch to a harder compound on both sides. Set the stagger to the maximum of +1.00 for both race and qualification and set the pressures between 24-28.

Set the shock absorbers as stiff as you can. The best results are gained from setting them two notches from the bottom.

Don't modify the cambers at all as it keeps all four tyres even on the track. The gear ratio should be set to 10.00 or slightly either side for maximum performance. Put the front anti-roll bar to maximum stiffness and the rear one a couple of notches stiffer. Set the turbocharger to nine, this is heavy on the fuel consumption, but gives impressive acceleration.

Stunt car poser

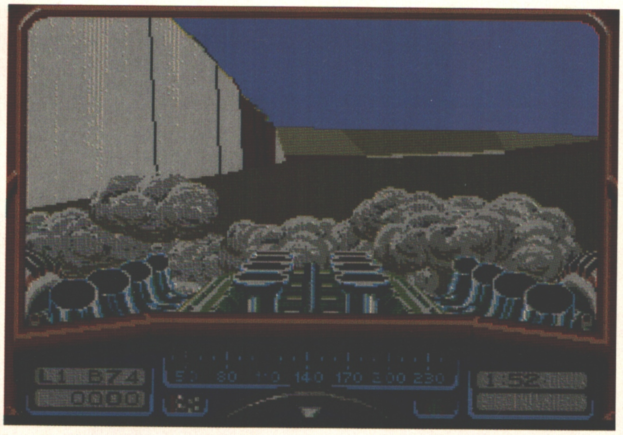
Q Do you have any general hints for the brilliant *Stunt Car Racer*?

A Although this game's getting on a bit, it's still a superb racer that's well worth digging out. We've been asked for quite a few cheats to the game, but the best advice we can give is for the courses.

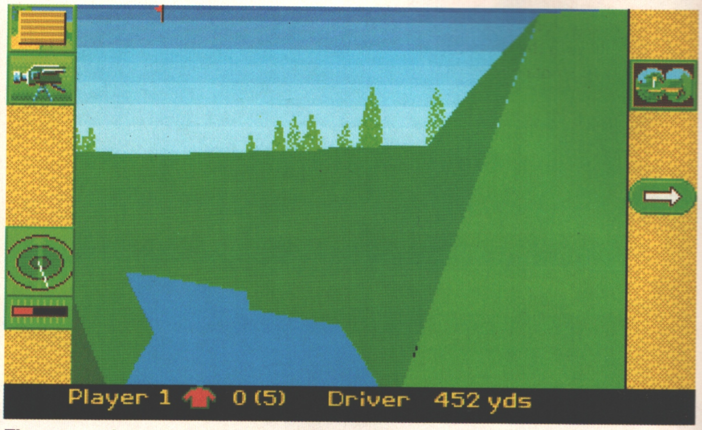
LITTLE RAMP: take the first corner at full belt and the ramp at 150 mph.

HUMPBACK: accelerate around to the hump so

Continued on page 48



Lovely little car, no engine noise, only one owner from new, tyres six feet wide and a lovely paint job too. That's *Stunt Car Racer*, a classic.



There are only a couple of decent SteadyCam operators in the world, and only one on the Amiga – that's what's giving you this view in MicroProse *Golf*.

that you're doing 200 mph by the time you're half way up it. On the other ramps keep either below 130 mph or over 180 mph. Take the rest of the track at around 170 mph.

BIG RAMP: make sure to take the first two small ramps at 170 mph and then speed up to 210 mph for the main ramp.

STEPPING STONES: take the start straight at 110 mph and the second gap at about 100 mph. On reaching the steps, speed up to 140 mph and try to keep your speed above 110 mph.

HIGH JUMP: speed up to 210 mph to clear the jump and keep under 200 mph for the small jump. To tackle the slanted road stay at the top of the ridge and keep the speed up.

ROLLERCOASTER: stay under 110 mph on the first hill and don't push too hard.

SKI JUMP: stay below 100 mph up the first hill and around 140 mph on the second. For the big jump get the speed up to 220 mph.

DRAWBRIDGE: at the drawbridge put your foot down when the bridge has gone down about halfway. Tackle all the hills at 140 mph, andin the bumpy section head down the middle of the track at 170 mph. Accelerate to top speed to take the down hill jump.

Really teed off

Q I've examined the lie, tossed digital grass meaningfully into the air, worn some particularly stupid looking trousers and I'm still not getting any better at Microprose *Golf*. Help!

A It's best to start the game as a novice because although you won't be able to improve your handicap or save any profiles, the lack of wind and the fixed swingometer mean that you'll be able to concentrate on the basics of the game – course strategy and power. This involves summing up the dangers, choosing the safest route down the fairway and learning how to strike the ball correctly.

Before you hit the ball, look at all the information for each shot and work out which club best suits the distance you want the ball to travel. Use the binoculars to look at the intended landing area as there could be hidden traps. Check your lie to see what kind of grass depth the ball is sitting on and don't forget to test the wind direction. When you're teeing off think carefully about your strategy for the hole. Make use of the tee icon to increase the options available. For example, you could move across the tee to straighten out a dog-leg hole and get a better view around some trees.

If you want to increase your pitch distance to clear a hazard, tee off from the highest position, but remember that this makes the shot more difficult. You'll also get a longer overall distance from the lower tee position if there's a headwind.

Putting is tricky at the best of times and is worth practising. The most important aspect to remember here is that the halfway mark on the putting meter always represents the optimum flat power, whatever the distance of the putt. All you need to do is hit harder if the putt's uphill and softer if it's downhill. You should also check the sideslope by using the grid icon to see whether to play the ball to the left or to the right. Don't forget the effects of your stance on the flight of the ball. By closing your stance (moving the left foot in) it's easier to draw the shot and with an open stance it's easier to fade the shot. If you're playing off a steep right-left slope use the open stance and vice versa. By moving the ball pointer backwards, it's possible to create backspin or reduce the power of the shot. In the bunkers remember that the sand wedge has a very high loft, which means that it's quite sensitive to the slope it is played off. When setting the power of the shot bear in mind that balls played off the rear (usually downward sloping) section of a bunker will gain more forward distance than those played off the front.

New golf standard

Q Could you offer some guidance on the harder holes in Microprose *Golf*?

A Straight from the programmers themselves, here are some hints to performing well at the ten hardest holes in the game:

A clear day, a clear green, and a 17-foot, 10-inch putt to win the game. Golf is soooo relaxing.

BALLYBROOK HOLE 18: on your first shot use the far right tee position to straighten out the angle. Set the tee position to the top to gain enough height and you should be within sight of the green for your second shot. If you've got anything other than a perfect lie, settle for a short pitch to near the edge of the brook. From a good or fluffy lie you'll be able to use a three wood to play to the right of the bunkers around the green. Be careful to pitch the ball accurately on to the green because it's large and bumpy.

BALLYBROOK HOLE 12: the most important aspect of this hole is the steeply sloping left-right fairway. In order to be able to see the pin on your second shot you have to play above the fairway bunker or the ball might roll to the right and ruin your approach.

BALLYBROOK HOLE 15: on your tee shot aim over the stream to the left of the fairway. As you aim left bear in mind that you don't want to be too close to the line of trees near the lake. On your second shot use a club two more powerful than you'd normally require and under-power the shot. This will bounce the ball up the long uphill.

FAIRDALE PARK 'BLUEBELL AVENUE': for your tee shot use a five wood or a one iron aimed down the middle of the fairway.

That should leave you in the gap between the copses on the righthand side. For your second shot , you can rotate one stop to the right to compensate for the slope and use a nine iron on full power to clear the trees.

ST AUGUSTINE HOLE 9: on your tee shot, make sure that you don't under-power and end up in the brook. Aim to the right side of the green as it slopes to the left.

ST AUGUSTINE HOLE 10: you won't be able to clear the brook from your tee shot, so use an overpowered three wood to reach the water's edge. On your second shot use another three wood and aim for the righthand portion of the green.

BUCKLAND HEATH HOLE 16: target the righthand edge of the fairway beyond the bunker, so that you'll be able to play on to the green.

Aim straight at the flag and use a slightly under-powered pitching wedge. With any luck this should place you pin-high but just beneath the cup and set up for an easy birdie putt.

FENHAM VALLEY HOLE 1: be brave on your tee shot and drive the water, remembering to put your tee to pitch over the hazard.

For your second shot avoid all temptation to play for the green because you'll almost certainly

find the water. Instead play short with a mid-iron. This will leave you with a short pitch that should be aimed slightly to the right, with the ball at the back of the stance for maximum backspin and stopping power.

FENHAM VALLEY HOLE 18: with your tee shot you've got to pitch over the lefthand side of the fairway to get a good view of the green. On your second shot, try a three wood over the trees, risking the bunkers. For a safe second, play a long iron short of the bunkers and then pitch accurately to the pin.

MOUNTSUMMER PONT 'OLD LUMPY': aim for the extreme righthand edge of the fairway with a driver to avoid the bumpy grass. This should leave you a second shot from the centre of the fairway, but when you play it watch out for the sloping lines that will make your stance more awkward. Check the power curve on the swingometer and take a three wood aiming at the righthand edge of the green.

Whirlwind fluker

Q I've heard that there's a 147 break simulator built into *Jimmy White's Whirlwind Snooker*? How do I access it?

A It's as simple as this: just press F7, F4 and F1 and you should hear a double click sound. Return to the control menu, enter demo mode and you'll find that there's a third option called 'Do a random 147 break'.

The Madden crowd

Q Could you help me advance through the levels in *John Madden's American Football?*

A To get through to round two enter the code 6647600, for round three enter 6257651 and for the final enter 6657657.

Shiny metal balls

Q I'm no pinball wizard. Can you help me on *Pinball Fantasies?*

A Cheating at pinball, oh dear, oh well… try the following cheats. You should enter them after you've chosen the table, but before you choose the number of players.

EXTRA BALLS gives you five balls, instead of the usual three.

DIGITAL ILLUSIONS stops the ball going out of play; be careful not to tilt the table in this mode as you'll have to reboot.

HIGHLANDER makes the ball suddenly heavy.

VACUUM CLEANER clears the high scores.

EARTHQUAKE disables the tilt function.

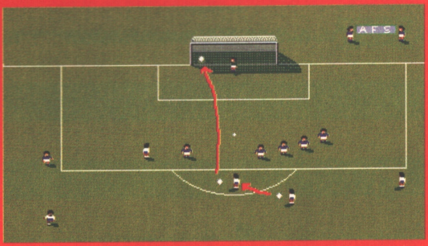
FAIR PLAY resets all the cheats and puts everything back to normal.

TECH STUFF for lots of technical gubbins.

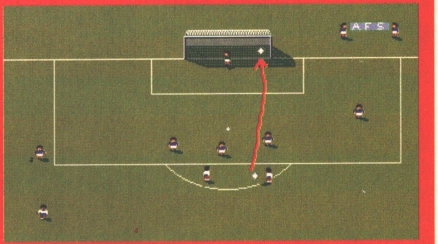
BETTER THAN GRAHAM TAYLOR

Q I've been playing Sensible Soccer for months now, do you have any tips that will make me half decent at it? Can you also tell me why 'that idiot' won't pick Chris Waddle?

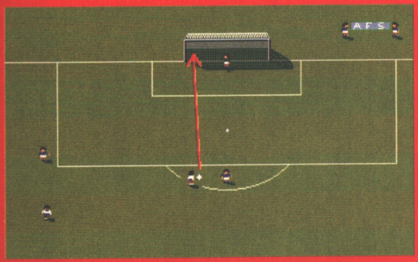
A Here at the *AFS* School of Excellence we have a young lad called John Hare (from the Sensible Software stable) who has let us in on the following net-busting Sensible Soccer hints and tips. As for your second question, we haven't the foggiest. Ask Carlton Palmer and David Batty.



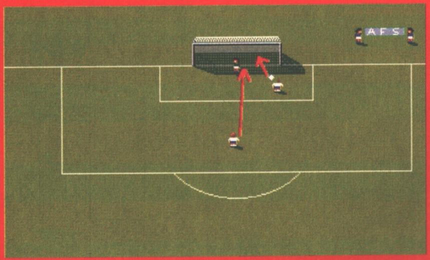
Try tapping the ball to the player beside you at free kicks. The oppositions defenders will look up for a second allowing you to spank the ball home with a precision shot.



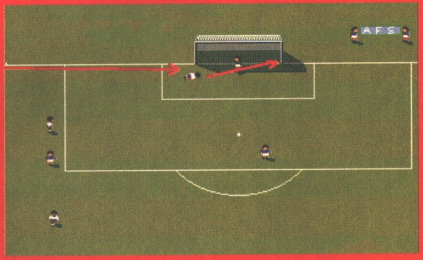
If the opposition have had a defender sent off, this opens up a great onion-bag bulging opportunity to you – try bending the ball through the hole in the wall and into the back of the net.



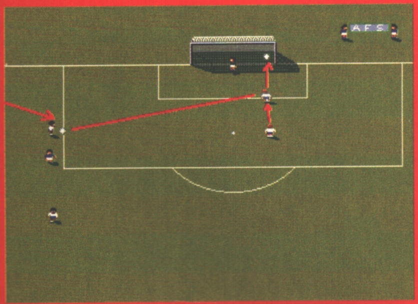
An easy goal is the shot aimed just inside the post (with little aftertouch) just outside the area. First nip around the defenders and you should be able to wrong foot the keeper.



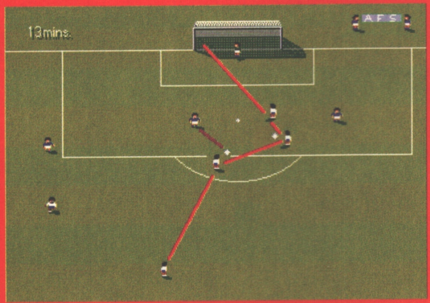
This is quite an obvious one, but it is easily forgotten in the heat of battle. Unlike a few teams we could mentioned, make sure to follow-up on penalties in case the goalie saves it.



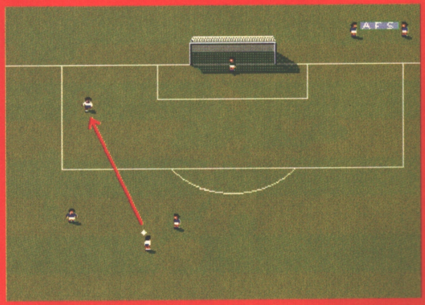
One handy corner is the lofted chip towards goal, followed up by a diving header at the near post. This diverts the ball like a rocket past the enemy keeper and into the corner of the net.



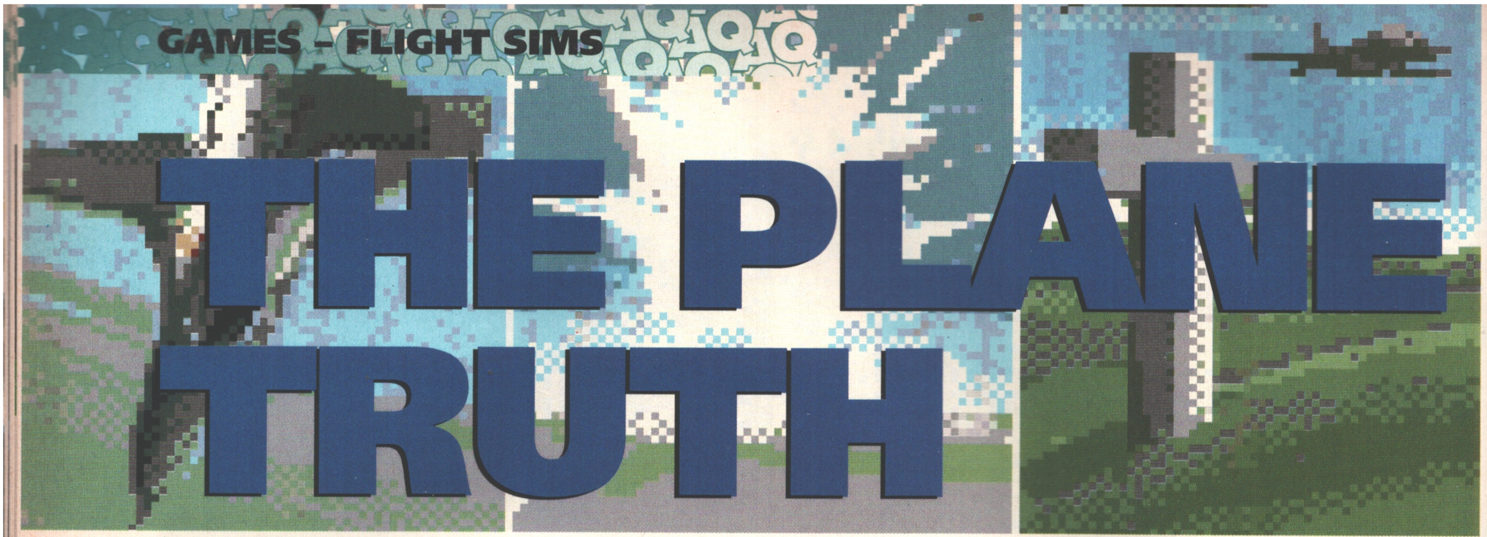
Alternatively, there's the not-so-short-corner. Use the player square of the corner taker, and then he can swerve in a dangerous cross to be met by a forward at the far post.



On receiving a pass in mid-field, hold on to the ball until the enemy defender runs towards you, leaving a gap in the defence. Pass the ball to your team-mate who can swerve the ball in.



If you're caught in your own half, facing your own goal, it's often a good idea to pass back to your own fullback and let him play it up field, rather than turning under pressure.



THE PLANE TRUTH

If you don't know your elevators from your ailerons, but want to take to the skies with Amiga flight sims, then take heed of the answers to the following questions

Hour finest tips

Q Although I like the attention to detail in *Their Finest Hour*, it can be confusing. Do you have any general hints for this great game?

A Before you start the combat or campaign missions, use the training flights to practise on the different aircraft and missions. Learning the good and bad points of each plane, German or British, can be a great advantage whichever side you choose to fly for. For example, if you fly the training missions then you'll discover that Spitfires and Hurricanes can turn more tightly than an Me 109. However, you'd also find out that the Me 109 is superior in a dive or climb and that its canons can shoot at longer range than either of the British aircraft.

The missions can be divided into four types: offensive, defensive, escort, and bombing. Offensive and defensive missions involve dog-fighting, which requires plenty of tight turns. When you are in a tight turn keep an eye on your speed because it is easy to stall. When you're on the tail of the enemy aircraft you should aim to turn inside it. Do this by either cutting your throttle or dropping your flaps. When you're behind an enemy be careful not to overshoot your target.

To compensate for this when the target moves towards your sight, aim slightly ahead of it. Take into account the speed and the distance between both of you and should drill the enemy cockpit full of holes. This is called deflection shooting.

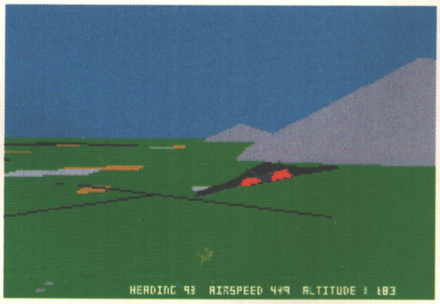
During the escorting missions fly as close to your bombers as possible, because this makes them easier to defend. If you're flying an Me 109 and you are met head-on by a Spitfire or Hurricane, use your cannons first to inflict damage and then switch to guns as it gets nearer. If you overshoot an enemy fighter pull up sharply until the point at which you're almost stalling and then push your nose down. You should find yourself on its tail again.

When you are on bombing missions, approach the target as low as possible and then once you're lined up, turn on the auto-pilot and switch to the bombardier's position. Like deflection shooting, allow for the speed of your aircraft and your height and then release your bombs. The aim of the campaign missions is to reduce the efficiency of the opposing airforce to below a certain percentage and therefore your personal score should be of secondary importance. As a result you should aim to complete each mission in the correct manner. If you're flying for the Krauts then take out the British positions in the following order. Firstly destroy the radar stations (as this reduces British response time) and then attack the airfields. Leave the factories and headquarters until last as these will be defenceless.

Unstealthy habits

Q Despite my best efforts I keep getting shot at, missiled and generally harassed in *F-19 Stealth Fighter*. What am I doing wrong?

A Stealth effectively means reducing your radar signature. The design of the aircraft makes it difficult and in some instances impossible to detect on the enemy's radar screens. Although this is a defensive tool, it's also the main weapon of the F-19/F-117A. The secret to staying invisible is not to turn too sharply as this shows up on radar screens.



Staying invisible to enemy radar is the key to success in *F-19 Stealth Fighter*...

...because then you can sneak up on enemy targets and blast them into little bits.

Success in each mission depends partly on making a careful note at the initial briefing of the type, position and range of the radar stations. There are two types of radar: pulse and Doppler. To combat pulse radar fly towards it and then turn away between each pulse. Make a note of the time intervals between each emission. Fly as close as you can to the station and then turn away. Doppler radar stations pick up targets coming directly towards or going away from them. So once you are at the boundary of their range, you can avoid them by keeping a constant distance around the radar's arc.

If you do get picked up by radar, stay as low as possible or fly behind a hill or mountain. Use the satellite map in the cockpit to see what type of radar is in use in the area. On the computer map dotted lines are pulse radar and solid lines are Doppler radar. Try going around mountains instead of over them to reduce the likelihood of being picked up by radar but if you are picked up when you turn, return to level flight to become invisible again.

Study the mission briefings before you take off, because you'll find things happen very quickly once you're over enemy territory. Also, make sure that whenever you're using the camera views, that you put the HUD (Head Up Display) in the correct mode. For example, if you're looking for enemy aircraft, and your HUD is still in air-to-ground mode you won't see them. This point is easily overlooked in the heat of battle .

The F-19 is not a dog-fighting aircraft, so use its stealth qualities to your advantage. Generally you will see your enemy before they see you, so you tend to have the chance to fire first. If in battle you only have guns left to use, and you are pursuing a faster enemy, be patient and stick with it, as they will eventually make a turn that will cut the distance between you. When you are close enough wait for the enemy to turn again, and fire a deflection shot.

Air we go

Q Can you give me some guidance for the missions in *Falcon*?

A *Falcon* is one of the older sims, but it's also one of the most enjoyable and realistic around. Falcon is a multi-role aircraft and this is reflected in the kind of missions that are on offer. These can be divided into dog-fighting and bombing roles. On the Milk Run, your mission is to bomb three practice

buildings. Head north for about five miles, then do a 180 degree turn to the right. Drop to 500 feet, then make sure your COMED (Combined Map and Electronic Display), is switched to the Electronic Display mode showing you an enlarged image of your target. Line up the buildings, "pickle" (select) the target and fire. When approaching these buildings drop your speed. Remember to "pickle" your next building before firing, otherwise your missile will go to the last selected target.

When aiming, place the cross-hairs on the COMED at the base of the building. This seems to be the most effective way to destroy buildings.

The techniques used in the Black Bandit mission apply equally well to the other dog-fighting missions such as Double Trouble and Grand Slam. When you pick up a target on your radar, one way of getting the advantage is to hit your auto-pilot. This will put you on the tail of your enemy very quickly and then, once the enemy is in view, take your finger off auto-pilot and fly manually.

When you are approached by multiple 'bogies' choose one and stay with it. Enemy aircraft will disengage if you fly over or past your own airfield, so if you're a bit scared and/or battle scarred head for home. Oh, and if you don't want to be picked up by enemy aircraft radar, turn off your own radar until you need it. On the Dragon's Jaw mission, the cantilever bridge cannot be destroyed with Mavericks. You'll need to take MK 84s which are heavier, so it is best to take a spare drop tank.

Falcon seems easier to fly using the keyboard, rather than a mouse or joystick. If you are at Major or above and you eject unnecessarily, that is, you are undamaged and you have plenty of fuel, you will be court-martialled. If you eject over enemy territory, you become a Prisoner Of War. Ejecting while flying upside down results in death. If you fly off the map by mistake and get lost, hit the auto-pilot and this will bring you back on to the map area again.

Pilot wail

Q I've been having quite a few problems with *F-16 Combat Pilot*, not least of which is how to land the blessed plane. Just how do I get the plane down in one piece?

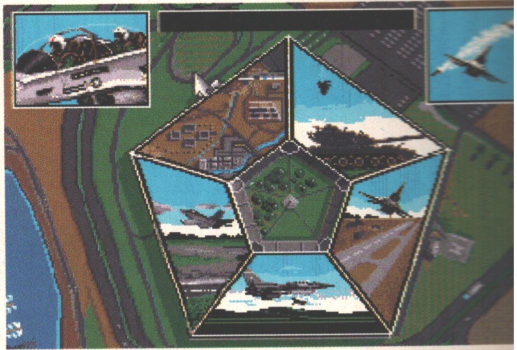
A This award-winning simulation has been around a few years, but like the other F-16 sim (*Falcon*) it offers atmosphere and realism that even more recently produced games struggle to equal. As you've pointed out, one of the most difficult aspects of *F-16* is the landing. Invariably you find you are either too high or falling too fast. The trick is to make sure your VSI (Vertical Speed Indicator), is no higher than 4 when you are at the start of the runway. Use the ILS (Instrument Landing System), to line your aircraft up with the runway. Your final speed should be below 150 knots. When you land immediately reduce your engine revs to 60 per cent and put on your wheel brakes. If you are travelling faster than 50 knots by the time you reach the end of the runway you will crash so be ready to reduce speed as soon as you touch down.

Strike it lucky

Q Can you give some information on the rules of engagement in *F-15 Strike Eagle*?

A Many of the rules of engagement for *F-15* have already been covered in the other games. However, here are a few more that are more pertinent to this particular sim. When landing on an aircraft carrier, remember that the deck is 125 feet above the sea, so you land at an altitude 125 feet. If you have completed a bombing mission and you still have some bombs left, remember to jettison them if you encounter enemy aircraft as this will make you more manoeuvrable.

You need to employ different tactics for *F-15 Strike Eagle* (left) and *Falcon* (below).



***F-16 Combat Pilot*: landing your aircraft is difficult if you don't come in at the right speed.**

Missiles in *F-15* do not necessarily have to hit you to do damage. If they explode nearby you can be hit, so bear this in mind when firing or evading missiles.

Guns can be effective against ground targets. When strafing, get as close as possible to your target, but not below 350 feet. When dog-fighting, anticipate the movements of your enemy and use the track-cam to see which way it will next fly. Remember that missiles are more effective when shot from behind, because they are harder to evade. When on a mission, do not fly directly towards the target because this is what the enemy will expect. Instead fly slightly away from the target to avoid being tracked, perhaps take out some SAM sites on the way. Then turn towards your target at the last minute.

Knight flight

Q I'm absolutely hooked on *Knights Of The Sky*, but the Hun keep shooting down my Spad aircraft before I can give the Red Baron what for. Can you print some tips for the game?

A *Knights of the Sky* is the best WW1 flight simulator around, because it has the right blend of authenticity, stunning graphics, and brilliant gameplay. You may, however, find it a little unfamiliar, because WW1 aircraft do not have electronic devices to help you to get from A to B.

So remember to make constant referrals to your map. Also, try to stay on the route marked out on the map, for the mission.

After receiving your orders and route you are placed in the cockpit. The fastest way to get off the ground is to press the [SHIFT] and [+] key at the same time instead of just the plus sign.

Your engine revs will immediately go up to 100 per cent, instead of increasing by 10 per cent at a time. When you want to turn, you should try to make smooth and gentle joystick changes. If you are too aggressive, you will overdo your turns and end up getting lost and flying in circles.

When climbing do not pull your nose up too steeply or you'll stall, because of the lack of power in your aircraft's engine.

When flying over the trenches, avoid the anti-aircraft fire by either flying fairly low or fairly high. If you find it difficult to shoot ground targets you can cheat by landing and flying along the ground. When your target is in range just fire.

Finally, if you're badly damaged and land you can still shoot down aircraft from the ground. Just wait until one flies across the path of your gunsight and shoot. That should surprise the blighter.

ON THE LEVELS

If you're stuck on a level of *Rick Dangerous*, or you can't get past the baddies in *Putty*, then we've got the solutions to these and many more prickly platform problems

Try some Whiz, kid

Q **Can you tell me how on earth do I get through the caves in *Wizkid*?**

A Right, this sounds a bit complicated to explain, but it's not really that difficul to execute. First of all, going through the door on the left will take Wizkid to the cave number which equals the current cave number multiplied by two and then added to one. Consequently, if you went through the left door in room six then you'd end up in room 13 – geddit? Of course you do.

However, if you go through the door on the right you'll take Wizkid to the cave number which equals the current cave number multiplied by two.

Thus, going through the right door in room 17 would take Wizkid to room number 34.

Going through the hidden door will take Wizkid back to the cave entrance so you can either go back in or return to the start by going through the door marked EXIT. Using this method enter room 76 to switch the sound on or off or to hear all the different sound effects.

In room 124 you can toggle the Continue option on or off.

In room 206 you can play *Wizaroids*.
To get to level 2 enter room 46.
To get to level 3 enter room 51.
To get to level 4 enter room 58.
To get to level 5 enter room 67.
To get to level 6 enter room 78.
To get to level 7 enter room 91.
To get to level 8 enter room 106.
To get to level 9 enter room 123.

In your Strider

Q **I'm having difficulty completing the last level (five) of *Strider*. Any advice?**

A As soon as you appear on the level, walk right and collect the long sword and then destroy the guard behind you. Jump on to the platform on your right, go to the bottom and then jump across on to the wall.

Destroy the guard at the top with your sword, destroy the flying object above you and then take out the guard at the other side of the gap in the floor. Jump across it, walk along and destroy the flying object before taking out the two guards and then the flying thing.

Walk up the side of the hill and destroy the guard at the top. Climb the wall, but don't bother terminating the guard, just climb up when he turns left. Do the same for the next guard.

Now destroy the guard at the top and walk on. Collect the long sword when it appears and use it to destroy the small flying object on the other side of the gap. Jump this gap and climb up the wall. Destroy the small flying objects as you work your way up the wall.

ZOOL'S OUT

Q **Much as I admire Zool's leaping abilities I can't get past level two. What's the cheat for this game?**

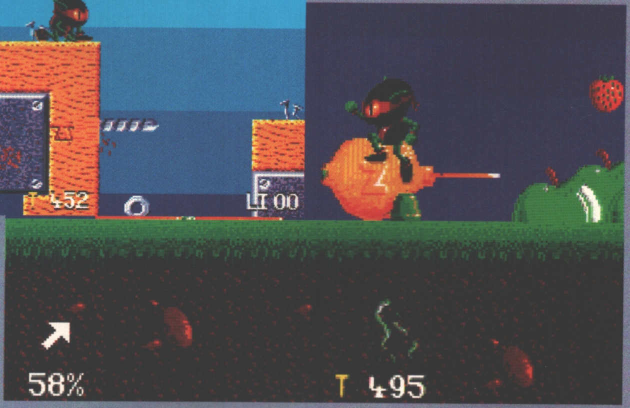
A Simple enough this one, the old "I can't get past level 2 cheat".

All you have to do is to type the following into the title screen:

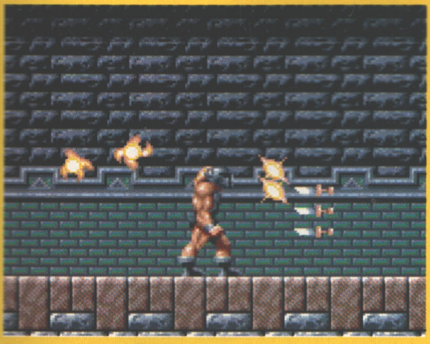
GOLDFISH (*all in upper case*)

Once you've done that, you will find that the function keys – those keys that are at the top of the keyboard and that are marked F1 through to F6 – move you to the level that corresponds to the key number. The F7 key gives you an extra life

Also pressing the number (not the function key) 1 makes you invincible. Key 2 warps to the next section. Key 3 to the next level, 4 commits suicide and key 5 takes you to the bonus level 6.1.



Are you certain that month in and month out you want to be given tip after tip by *Amiga Format*? Well you'd be silly not to, so yes, you probably do!



Gods: an excellent plaformer from the Bitmaps, it is said to contain 'intelligent' monsters and more. Well that's what the Bitmaps say at least.

They probably just mean Arsenal team members congratulating a goal-scoring mate. But then again, we did say intelligent didn't we? Ian Wright, what a star!

EEEEEE GODS!

Q **Could you tell me what all the potions do in Renegade's great platformer Gods?**

A **Correct use of potions can be helpful in completing many sections of the game. Because you can usually only carry three items in the inventory at one time, it is not always wise to buy too many potions in the shop. You might run out of room for carrying other objects that might be necessary for solving the puzzles.**

Weapons that are powered up once will have one extra hit point and fire in two directions, a weapon powered up twice will have two extra hit points and fire in three directions, and so on (smaller power potions power up weapons once, large power potions power up weapons twice).

The same effect can be obtained by picking up or buying multiples of the same weapon.

So here, in all their glory, are all the potions and their functions:

TYPE	DESCRIPTION	VALUE
Chicken	Restores energy	00650
Apple	Restores energy	01000
Weapon	Arc standard	01000
Weapon	Arc intense	01000
Bread	Restores energy	01300
Small health	Restores energy	04000
Magic potion	Freezes aliens	04000
Shield	Invulnerability	05000
Magic wings	Affects familiar	05000
Power potion	Increases weapon power	06000
Large health	Restores energy	08000
Power claws	Affects familiar	10000
Power potion	Increases weapon power	12000
Shield	Reduces damage	20000
Extra life	Obvious really	20000
Familiar	Helps in battle	30000
Starburst	Clears screen of enemies	10000

Drop off the edge and use the sword to open the capsule on the other side of the gap; jump over and collect it and then drop down the gap. Use the same method to destroy the huge round object that you used on level four. If you drop on the left hand side of the gap, jump to the right and drop off the side and you should land on a platform.

Pick up the long sword and walk along, then drop off the side of the wall and crouch near the hole. When the object rises out of the ground, use your sword to destroy it. Jump over the gap, kill the guard and collect the energy pod, destroy the next guard and collect the next energy pod. Walk along and jump the two gaps in the floor. Walk along and just as you pass a thin blue line in the background a huge gorilla will jump out at you. Hide your obvious surprise and keep swiping at the ape. Keep it up until you've completely killed the gorilla. And that's the end of the game.

Nebulous answer

Q **I'm not having much joy beating the towers of *Nebulus*. Any hints?**

A Well, if we tell you that the programmer of this superb game is a chap called John M Phillips, then the following tip will make a great deal more sense to you.

If you want to make your life a bit easier then type in HELLOIAMJMP on the title screen.

This gives you infinite pogos and the ability to select any level by pressing F1 to F8.

Undone flytraps

Q **I've recently been getting really into the excellent *Venus the Flytrap* from Gremlin. Could you tell me what the level codes are?**

A We're quite surprised that we had any queries about this game (it was featured back in ***Amiga Format***'s 33rd issue), but as usual, there's no problem in solving your problem. Try these passwords:

LEVEL	PASSWORD
The Frozen Wastes	Mantids
The Dead City	Cicadas
Wood World	Psyllids
Death Valley	Satyrid
Creeping Swamp	Lycaenid
Tech Swamp	Pyralid
Translucent Plant	Noctuid

If you'd quite like to soup up your weaponry then try typing in either MARS, PLUTO, SATURN, JUPITER or MERCURY for some interesting effects. We hope this has done the job.

Antipodean hints

Q **As much as I enjoy the brilliant *New Zealand Story*, I'm not having a lot of joy on the later levels. Do you know what the cheat for this is?**

A Certainly do, but it's a bit rude. If you're a bit younger you'll have to get a grown–up to enter the missing bits (denoted by the •) for you, but here we go. Type in the phrase:

MOTHERF• • KENKIWIBA• • • • D

and you'll enter cheat mode. If you've got the version in the Batman Pack then you don't need to enter any swear words. Instead press the [Del] key and enter **FLUFFYKIWIS**. This puts you into the cheat mode.

Having a Wizball

Q **Do you know what the cheat for the original Sensible Software game, *Wizball*, is?**

A Yup! Try pausing the game using the space bar and then typing in the word **RAINBOW**.

If you now restart the game you'll find that pressing the following keys provides the following game-enhancing effects:

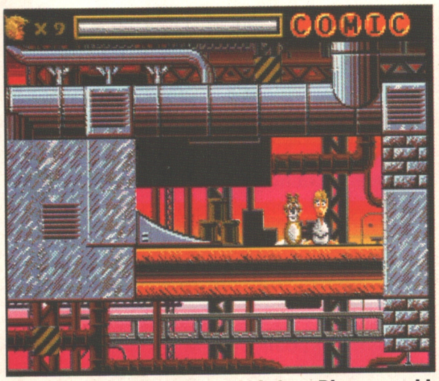
[C] fills up the cauldron with the current colour.
[S] completes the level.
[T] finishes the game.

Charidee walker

Q **I know it's for charidee but can you tell me if there are any cheats for *SleepWalker*?**

A Cheating at a charity game? Disgusting! But as usual, there certainly are a couple of good ones, so here we go… just before the introduction to Ocean's great narcoleptically advanced game begins

Continued on page 54



The sad tale of one dog and his boy. Disney would be proud of it. Well except the deaded bits.

PRIME COD – PRIME DIRECTIVE

Q Is there a cheat for the puntastically smashing Robocod?

A There is. All you have to do is to type in the following phrase:

THE LITTLE MERMAID
(including spaces)

and then press the following keys:
[RETURN]: Infinite Shield
F6: 50Hz.
F7: 60Hz.
[K]: Suicide.
[P]: Gives you an aeroplane.
[F]: Gives you wings.
[X]: Warps you the nearest exit post.
[M]: Map select.

By the way, on the map select level you'll be able to enter a two digit number (for example 02 or 24) and zip to a specific section of the game. Try 16, 35 and the last number, 50.

you should type the following rather lengthy code in at the title screen:

DINGADINGDANGMYDANGALONGLINGLONG

apparently Lee's nose will now turn green. Start playing and press press [RETURN] to jump between levels. Our next *SleepWalker* cheat involves some more keyboard tapping: in order to find the word 'Comic' go the following route:

C: above the shop canopy to the left of Nite Club.
O: past the bouncer.
M: past the sewer water and left.
I: up and left past the telegraph above the car.
C: pick up the beard near the first **C**, go to the sewer exit near the traffic lights, hit the four arrows. Go through the sewer to the right.

A right Rick!

Q Although I enjoy playing *Rick Dangerous II*, I'm not having much joy getting past even the first level. Can you help?

A Sure can, here are the solutions to level one.

1) Walk right without stopping to the second screen. Kill the baddie that comes down the ladder and lay a bomb next to the block at the bottom right of the screen. Collect all the goodies on the next screen, return and climb the ladder. Watch out for the spark at the top of the ladder. Climb up in between sparks and crawl left. Hit the button, crawl past the sparks and proceed right to get to the next screen.

2) Shoot two baddies. Climb the ladder, hit the button at the top and get on the lift to the left. At the top, crawl right to the barrels. Jump on top of them and then up-left to shoot the baddie. Drop back down onto the barrels, collect the shots, climb up the ladder on right and press the left button.

Go down the ladder, left and jump up to where the baddie was. Jump up a few platforms, climb the pipe and wait next to the block at the top, facing left, for a baddie to drop down. Shoot him and lay a bomb next to the block, then slide another to the other block down the passage. Go down the passage, collect all the goodies, then return. Climb up the pipe just next to the opening of the passage and shoot the baddie walking to and fro. Collect the bonus to the right. Jump left on top of the pipe and hit the button. Quickly get on the lift and on reaching the top crawl right. After the laser kills the baddie crawl left and go up the pipe. Shoot the baddie and jump up a level. Hit the button and just as the laser has started to go from right to left, quickly jump up two levels, then jump to the moving disk. Hit the button and walk left with it, jumping to the platform on the left as soon as possible. Slide a bomb to blow up the baddie below and drop down, proceeding left to the next screen.

3) Drop down the tube immediately to your left and shoot the baddie down there. Hit the left switch and then the right one. Just before the lift reaches the top jump up and right.

Carefully observe the timing of the spark. When it is just about to go from right to left, jump across the gap, continue walking left and as the spark is about to go from left to right jump again.

Drop down and as you land immediately shoot the baddie to your right. Get down on the right and drop into the niche where the shots are. Crawl to get them and go to the edge of the drop on the end of the screen, then wait for the lift to come up. As soon as it does, hit the switch on the left and as the lift drops keep walking left until you get off. Crawl right to the end of the platform and drop off in between lasers. Slide a bomb at the right time to blow up the robot, drop down and crawl left underneath the sparks to get the bonus. Crawl back, climb a safe way down the ladder and drop down in between the sparks.

Follow close behind the mad garbage can and climb down the ladder. Drop off and shoot the baddie, then lay a bomb next to the block at the left of the screen. Proceed left to the next screen.

4) Jump on to the moving disc, then on to the ladder (there is a chamber with bonuses in it on the left, but it is not necessary to enter). Climb the ladder and emerge at the top just after the baddie has walked over your head to the right. Walk left, get on the lift and at the top hit the button. Crawl to the right of the screen, hit the button and when you get near the top of the lift jump and perch just on the edge. Shoot the baddie and crawl left past the leaking pipe. Climb the ladder on the left, then climb again up the next ladder until you are next to the block. Lay a bomb and retreat down the ladder. Go up and right to the next block and lay a bomb, then jump up. After the explosion, hit the button and go back down the ladder to collect the bonus. Go up the ladder again and right. A lift will come up out of the ground. Jump off at the top and keep walking left without stopping. Climb up the pipe and shoot the baddie. Walk right until the trash can starts to move and then jump over it on to the barrels. Use the green platforms to get to the button. Press it and get onto the lift. Crawl to the ladder, climb it and get on to the lift which will rise. When he goes under you, drop off and proceed right, to the next screen.

5. Shoot three baddies and jump on to the lift. When on the lift, jump and at the top crawl left to the bonus. Crawl back and go down with the lift. Climb the ladder on the right and hit the button. Go up the ladder, jump left to the next platform, then crawl left to the ladder. Climb that ladder and stop half way up the next one on the left. Wait for the baddie to drop down past you on your left, then blow up the block to the right. Crawl right, past where the block was and drop down to the shots. Jump over the baddies patrolling the bottom of the screen and return to where the block was. Get on the lift and hit the button when the lift reaches it. When the lift gets to the top, crawl right and drop to collect the bombs. Jump to the ladder between lasers and climb it. Jump on to the single barrel and just as the sparks disappear, walk past them. Climb the ladder and crawl right, to the shots. Crawl back to other side of platform and jump on to it. Crouch down and at right moment jump on to the ladder and climb it. Wait for the baddie to climb down the ladder, then shoot him. Hit the button and get on to the horizontally moving lift. Climb the ladder, hit the button on the left, then hit the one above it. From now until the end of the level shoot all baddies at the first possible moment. Go right and jump up the green platforms until you are level with the parallel ladders on left. Go left and climb the left ladders. Proceed right, to the next level.

Core Design was more than pleased by its Dangerous little character – so was he appar-

A FLOOD OF TIPS

Q **I know this is a bit of an old one, but could you see your way clear to printing the level codes for the superb Bullfrog game *Flood*?**

A It certainly is a bit of an old 'un, and it didn't even make it to ***Format* Gold** status, but consultant editor Andy Hutchinson would have turned into a consulkant editor had we not bowed to this request – apparently this is the only game he's ever managed to complete (hence the cheats). So, to keep the peace (and Andrew from holding his breath 'til he's sick, and he can you know, oh yes!) here are those codes.

LEVEL	PASSWORD	LEVEL	PASSWORD	LEVEL	PASSWORD
1	FROG	16	GRIT	30	SING
2	YEAR	17	ZING	31	JOUX
3	QUIF	18	JING	32	PINK
4	LONG	19	LIDO	33	GOGO
5	WORD	20	POOL	34	LETS
6	FRED	21	HATE	35	QUAD
7	WINE	22	REED	36	BRIL
8	GRIP	23	LIME	37	EGGS
9	TRAP	24	QUID	38	HENS
11	FRAK	25	WING	39	NAIL
12	VINE	26	FLEE	40	SOAP
13	JUMP	27	GIGA	41	FOAM
14	NILL	28	HEAD	42	MEEK
15	FOUR	29	LOOP		

Prepare for more games than you can handle...

Even as we put the finishing touches to this edition of the Amiga Format Specials we are planning another foray into the meat of Amiga matters. This time it's games...

And we want you to tell us the following:

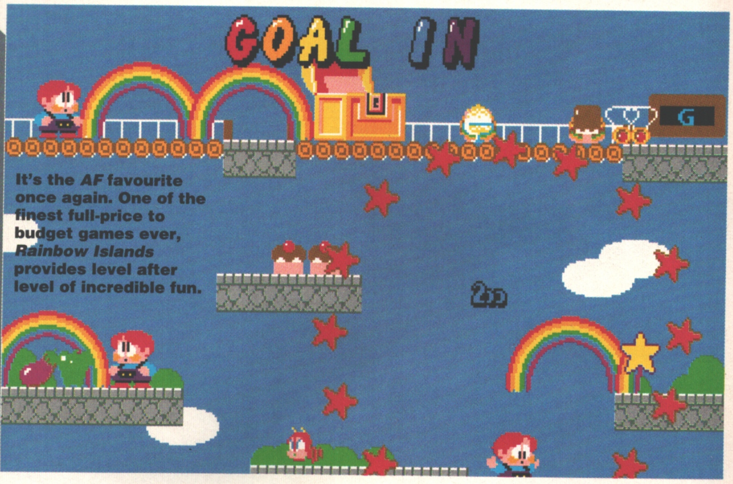
a) What is your favourite game of all time?

b) What is your least favourite game of all time?

c) Which programmer/programmming team would you most like to see interviewed?

d) Would you most like (i) hints, tips and cheats (ii) inside info on the programming of games (iii) none of these.

Send your answers to Andrew Hutchinson, Amiga Format Specials, Games Galore, 30 Monmouth St, Bath BA1 2BW.



It's the *AF* favourite once again. One of the finest full-price to budget games ever, *Rainbow Islands* provides level after level of incredible fun.

THE RAINBOW ISLANDS COALITION

Q **Could you supply a tolerant father with the codes to Rainbow Islands for an impatient son?**

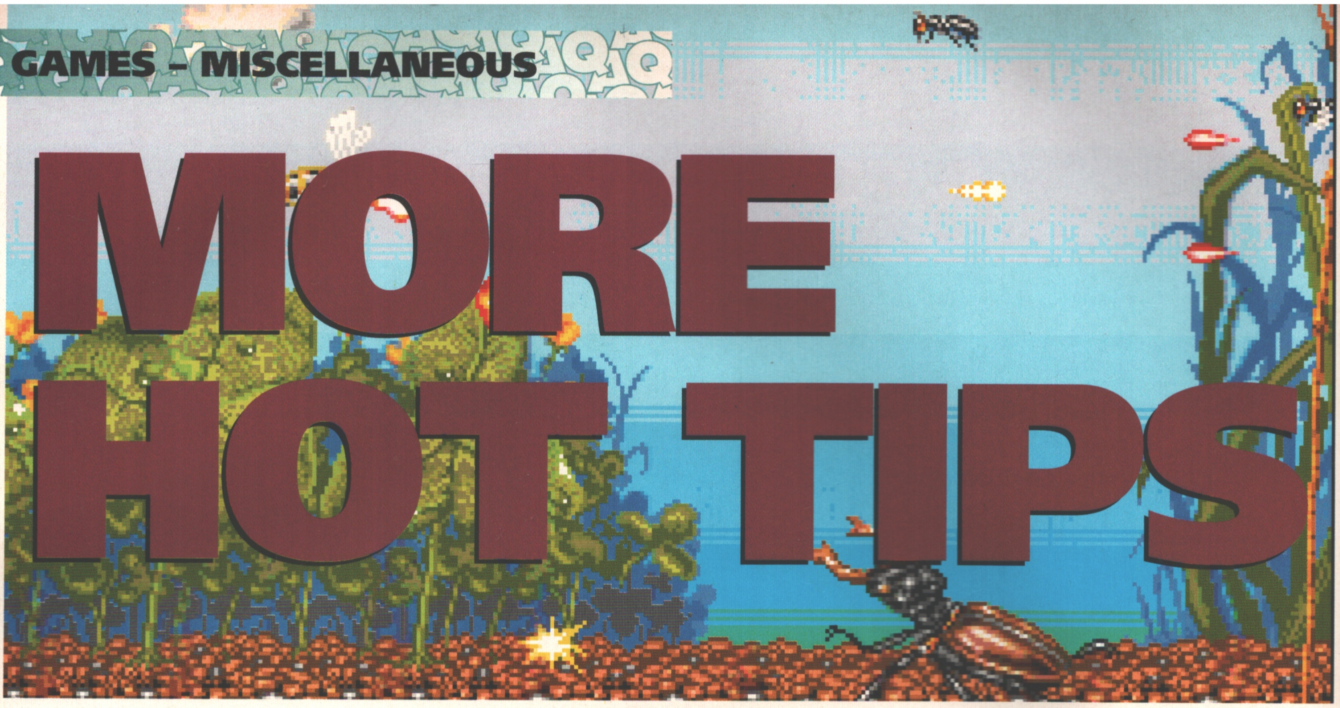
A No problem:

Island 1 - BLRBJSBJ gives you fast feet.
Island 2 - RJSBJSBR gives you double rainbows
Island 3 - SSSLLRRS gives you fast rainbows
Island 4 - BJBJBJRS gives you hint A
Island 5 - LJLSLBLS gives you hint B
Island 6 - SJBLRJSR gives you bad breath
Island 7 - LBSJRLJL gives you continue on all rounds

The real secret to this game is collecting gems in the right order. By collecting the seven gems in the order Red, Orange, Yellow, Green, Blue, Indigo, Violet you will reveal a secret room that enables you to get past the end of level baddie. Gems are obtained by crushing nasties with rainbows or with a star. To get the right coloured gem, bear in mind that the screen is divided into seven coloured bands from left to right across the screen. To get the appropriate colour gem simply make sure that the nasty ends up in the right band.

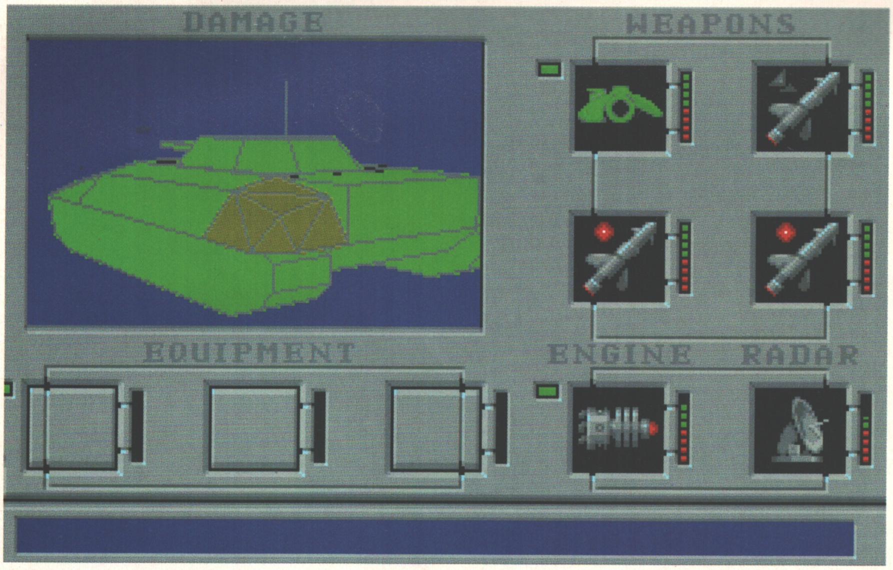
On Insect Island, to kill the spider stand to the far right on the ground and keep firing. It won't be able to get you there. To beat the helicopter use the small platforms on the left and the right of the screen, running across when the bombs drop. On Monster Island, it's not really worth tangling with Dracula at the end of the level, instead leap straight through the bounus room door before he appears. The same goes for the Jack-in-a-box on Toy Island; avoid him, leap through the door and collect the wings.

To kill Doh on Doh Island, use the wings to float up and pile the rainbows in. Once you've made it to Robot Island you shouldn't have any problem beating the robot baddie as his pattern's very predictable. However, if you've got all the gems nip through the door instead. Finally, once you get to Dragon Island, you've come too far to get into battle and should zip through that bonus door as quickly as possible.



MORE HOT TIPS

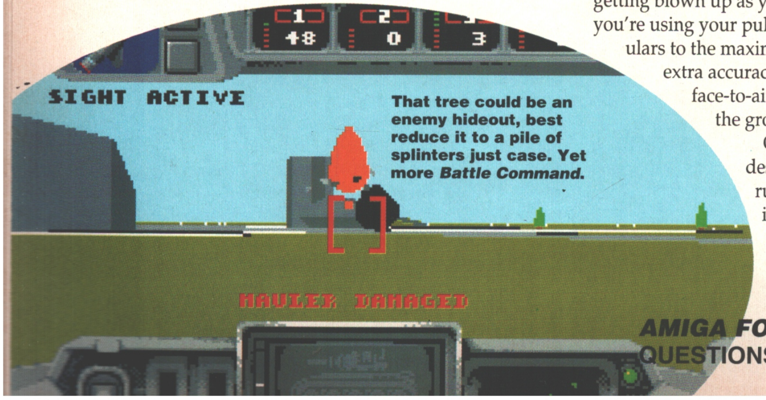
Here we feature a few general enquiries about *Format Gold* games that don't fit in the other sections, so if you want the *Lemmings* and *Apidya* level codes, here they are



***Battle Command* can take some getting used to, but with plenty of practice and by following our helpful hints, it won't be long until you're handling that tank like a real professional.**

In command

Q I'm not having much joy with the later missions in *Battle Command*. Any tips?



That tree could be an enemy hideout, best reduce it to a pile of splinters just case. Yet more *Battle Command*.

A This tank game does take a bit of practice to get right. In general you should try to destroy all the enemy at the pick-up point, this will avoid getting blown up as you board the chopper. If you're using your pulveriser cannon, set your binoculars to the maximum possible magnification for extra accuracy. Don't forget that your surface-to-air missiles can also be used on the ground targets.

On the Airfield Attack mission, destroy all the buildings near the runways. To do this stock up on infra-red surface-to-air missiles. On the Hideout mission use mortars (stock up on two sets before you set out). When you reach the circle of mountains use the exterior views at maximum distance to find the exact location of the target and then use the mortars set at around 500-700 yards.

On the Destruction mission avoid the crossroads as this always has gun emplacements based around it. If you've run a bit low on ammo, then sit next to the buildings you've still got to destroy and wait to be fired upon. Move quickly out of the way as the fire comes in and they should destroy the building for you. On Missile Battery mission just keep your head down.

On Satellite head south-west, cross the bridge and then follow your scanner. If you keep getting shot from behind, try sticking your tank in reverse and driving around backwards. This way you can pick off any enemy who might happen to be following you. When you do reach the satellite, drive into it slowly or you'll destroy it.

On the Kamikaze mission ignore the roads and head south-east to where the river and mountains nearly meet and head to the pick-up point. On the U-Bomb mission note that the fence at the entrance of the valley works by electricity and that the pylons are on the other side of the river.

Austerlitz hints

Q **I bought a second-hand Amiga that had a war game called *Austerlitz* with it. I'm getting nowhere with it. Do you have any general tips for the game?**

A This is an elderly game. We do however have some tips for you. Firstly familiarise yourself with the ordering system. If your rider manages to get through to his destination (he may get shot, so don't take it for granted) then the orders won't be carried out immediately. The relevant commanders have to be informed and this may take some time.

It's a good idea to get battle reports sent back every half hour, especially from your busier units. Even if a lot of this information is irrelevant you will have a better idea of how your troops are doing than if you simply sent a rider to them when you need to know their combat status.

If you order units which are disordered or routing, they will simply ignore you. Routing units

If you are stuck on *Apidya*, then we can come to your aid with the level codes. Fishy stuff eh?

usually retreat away from the enemy but they can get mown down by artillery fire. Watch out if they pass near your HQ because important riders might get caught up in the meleé and killed. In general, keep a unit out of battle for a while when it rallies and when engaged ensure that allied units are ready to give support if it is required.

Don't waste your precious artillery. Your Royal Horse Artillery is extremely fast and can be quickly deployed to shell one location and then speedily moved to shell another. Move your artillery to high ground as soon as you can so that it has a clear field of fire all around it. The higher up the artillery is the harder it will be for the enemy to dislodge them.

Carrier cheat

Q Having thoroughly enjoyed *Battle Command* I thought I'd check out its predecessor, *Carrier Command*. Although the game is good fun I'm having no joy against the enemy carrier. Is there a cheat for the game?

A There certainly is. Pause the game and type in THE BEST IS YET TO BE and then press [+] on the keypad. You should see a message indicating that the cheat is active. You should now find that all your craft are invincible. However, this kind of defeats the whole point of the game so why not try immobilising the enemy carrier by taking their base island. This effectively destroys his whole network leaving the enemy open to attack.

Apidya aid

Q Aaaaargghhhh. Can you supply me with the level codes to Apidya?

A Of course we can. While you're still on the title screen, just type in MISSHONEYBEEA to kick you off on level two, HASTALAVISTA to kick you off on level three, DEPUTYOFLOVE to start you on level four and SNEAKPREVIEW to move you straight to level five. If you really fancy wasting your twenty five quid completely, then you could always type in SHOWCREDITS to see the end of game sequence.

YOU COMPLETE LEMMING!

Q Although I consider myself to be quite good at Lemmings, there are some levels I just can't get beat. Can you print some of the later level codes?

A We can do better than that. Here's the complete list:

Tame

1	No Code
2	IHRTDNCCAD
3	LRTDLCADAO
4	RTDLCILEAH
5	TDLCAITFAP
6	DLCIHVTGAJ
7	LCALVTDHAG
8	CILVTDLIAP
9	CAHRVDLJAR
10	IHRUDLCKAK
11	LRUDLCALAH
12	RUDLCILMAQ
13	UDLCAHVNAJ
14	DLCIHVUOAS
15	LCALVUDPAP
16	CILVUDLQAI
17	CAHRTFLBLL
18	IHRTFLCCBE
19	LRTFLCADBR
20	RTFLCILEBK

Crazy

1	TFLCAHVFBD
2	FLCIHUTGBL
3	LCCLVTFHBL
4	CILTTGLIBR
5	CAHRUGLJBF
6	KHRUFLCKBP
7	LRUFNCCLBO
8	RUGNCILMBG
9	UFNCAHUNBN
10	GNCIHWUOBJ
11	LCAMTUFPBR
12	BKMTUNLQBP
13	CAIPTEMBCL
14	IHRTDOCCCG
15	LPTDMCCDCR
16	QTEMCKLECM
17	TEOCAHWFCH
18	DOCIITTGCN
19	ICCLVVLHCR
20	CKMUVMIICL

Wild

1	BCIPULOJCO
2	IHSUDMCKCO
3	MQWMKCELCH
4	PUEMCMLMCG
5	UDMCCHVNCO
6	LICIIUWOCL
7	OCALWUDPCF
8	CILWUEMQCN
9	CCHSTFMBDR
10	IHRTGOCCDK
11	LPTGMCGDDJ
12	STGOCILEDR
13	VOICAHUFDM
14	NKCMIVVGDM
15	MCCLUTFHDN
16	CIMTTOIIDJ
17	CAHSUFOJDK
18	IHRUGMCKDR
19	MPUOICALDR
20	QUFMCIMMDG

Wicked

1	UGMCCHTNDQ
2	OICKIUWODR
3	MCCLWUGPDJ
4	CILWUFOQDR
5	GCIQTMHBEH
6	IHSTDNGCEM
7	LPVDLFEDEJ
8	PVMHGMMEEJ
9	VLHGCHVFEQ
10	DLGKHTTGER
11	LGCLUTEHEQ
12	GIMTVLJIEO
13	GEHPUDLJEL
14	MISWMJGKER
15	MPUDLGCLEQ
16	QUMJGIMMEP
17	UMJGGITNEM
18	ELGIHUUOEK
19	HGGLVNMPEE
20	GKLVWLJQEK

Havoc

1	GEHPTGNBFI
2	MHPTGLGCFP
3	LPTGLGCDFK
4	RTGNGILEFF
5	TGLGCHWFFP
6	FNGIHWTGFH
7	LGCLVTFHFD
8	GMMTVGJIFO
9	GCHRUGLJFP
10	IHRUFNGKFH
11	MRWFHFALFQ
12	RUFNGKLMFP
13	UGLGAHVNFF
14	OHGOIVWOFL
15	LGCLVUFPFM
16	GKLTUNHQFH
17	GAHQTDOBGE
18	OHQTDOGCGD
19	MPTEMGADGJ

Perfectly reasonable and rational human beings have been driven to the point of distraction by the wonderful *Lemmings*. We consider it our public duty to print the level codes.

Q:

"WHAT IF I'M NOT READING ENOUGH ABOUT GAMES?

WHAT IF I NEED MORE INFORMATION?

MORE GAMES?

MORE *ATTITUDE*?

WHAT CAN I DO?"

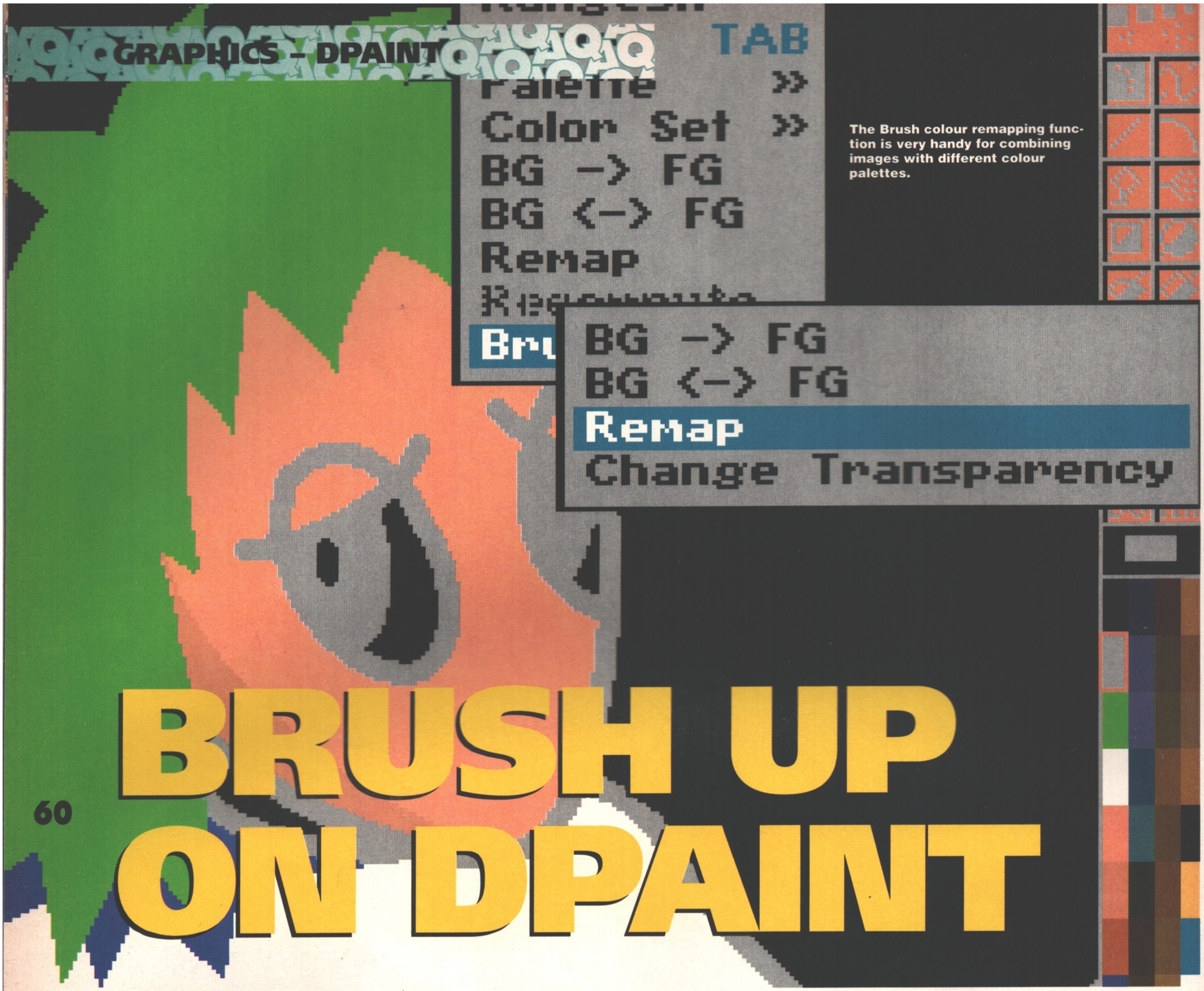
A:

AMIGA POWER

Attitude on the second Thursday of every month.

AMIGA POWER POLICY OF TRUTH

- We won't review unfinished games just to claim an exclusive.
- We don't pander to games publishers – we say what we really think.
- We only use experienced, professional reviewers.
- We won't bore you with mountains of technical-jargon-hardware tedium.
- We take games seriously, because you do too.



The Brush colour remapping function is very handy for combining images with different colour palettes.

BRUSH UP ON DPAINT

Electronic Arts' outstanding *Deluxe Paint* package is generally regarded as the best Amiga graphics program available, and if you've got an A600 you probably got a copy of it with your machine. Here we answer your *DPaint* questions

Changing modes

Q I've created an image in *DPaint*'s medium resolution mode but I'd now like to continue working on it in low resolution mode with the extra 16 colours on offer. However, because the image was created in medium resolution mode, it looks stretched whenever I load it into a low resolution mode. Can you help?

A You'll be pleased to learn that you won't need to buy an image processing program to convert your medium resolution image to low resolution – *DPaint* will do it for you.

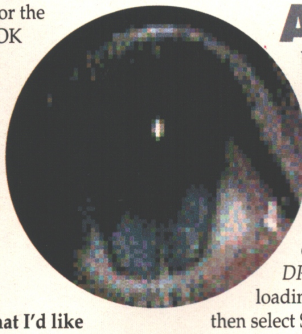
However, you must expect some loss in quality because converting a medium resolution image to low resolution will remove half of the horizontal detail within the image.

To convert the image, start by loading it into *DPaint* as a medium resolution image and once it has loaded, select Screen Format from the pull down menus and select the screen mode you want (low resolution, 32 colours).

In order for *DPaint* to scale the image to the new screen size, you need to reduce the page size. By default, *DPaint* will keep the original dimensions of the image regardless of the size of the screen. You can override this by selecting Screen for the page size.When this is done, click on OK and *DPaint* will start to convert the image. After a couple of seconds, a requester will pop up asking you whether you'd like to stretch the image to fit the screen. Click on the Yes gadget and *DPaint* will start to scale the image. This may take some time, so be prepared to wait.

Picture power

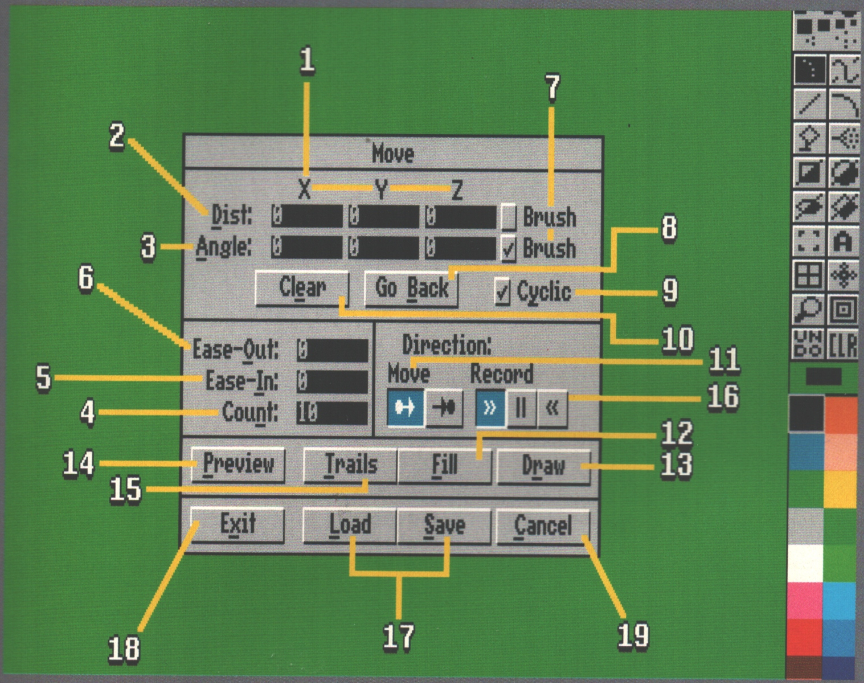
Q I've got two 32-colour images that I'd like to combine to produce a single picture by placing the first on top of the second and making the background colour of the first transparent. Can *DPaint* handle this?



A Not directly. It is possible to combine two 32-colour images, but you'll have to reduce the palette size of both images before you can combine them. Unless you're lucky enough to own an AGA-equipped Amiga, you'll have to start by reducing both to just 16 colours to combine them to produce a single 32-colour image. *DPaint* will do this for you. Start by loading each image individually and then select Screen Format and reduce the number of colours from 32 to 16 Then click on OK. Perform this stripping function for both images, remembering to save the new 16-colour versions

Continued on page 62

The moving experience



Q Having only just treated myself to *Deluxe Paint 3*, I'd like to experiment with the program's animation options but I'm finding the Move requester functions somewhat confusing. Can you help?

A *DPaint*'s Move requester can seem confusing, but play around with it a little and you'll soon come to appreciate just how easy it is to use. The Move requester controls the movement of both standard single frame brushes and *DPaint*'s special AnimBrushes by moving them in a particular direction specified in terms of the 3D X,Y and Z co-ordinate system.

The X axis controls movement to the left and right, the Y axis controls movement up and down the screen and the Z axis controls movements in and out of the screen (the brush gets bigger or smaller depending upon its Z position). Anyway, here's a rundown of the Move requester and its various gadgets.

1 X,Y,Z – The two sets of three string gadgets are used to enter values for the three co-ordinates used to represent 3D movement. A value in the X gadget moves the brush left or right, Y moves the brush up or down and Z moves the brush in and out of the screen.

2 DISTANCE – The distance parameter is used to move a brush a given number of units along the X, Y or Z axes.

3 ANGLE – Angle is very similar to Distance, but instead of moving the brush, it rotates it by a given number of degrees along the same three axes. If you experiment with combining values in both the Distance and Angle gadgets you can produce some spectacular tumbling effects.

4 COUNT – The Count gadget holds the number of frames that the current movement will be rendered into. For example, if you entered 20 here you would force *DPaint* to render the animation into the next 20 frames.

5 EASE IN – To give a more natural feel to brush movement, *DPaint*'s Ease In option can be used to progressively slow the animation as it reaches a final specified number of frames. A good application of this would be the movement of a car – although the car would move across the screen at a constant rate, it would slow down before coming to a stop if you used the Ease In option.

6 EASE OUT – Ease Out is the opposite in Ease In. Instead of slowing the animation as its reaches the final few frames, the Ease Out option can be used to build the impression of acceleration into a brush's movement. You could use it to make an animation of a car speed up.

7 BRUSH – Clicking on either Brush gadget determines whether the brush is moved along the screen's axis or the brush's own axis. Unlike the screen axis, the brush axis changes according to the current perspective setting of the brush in question.

8 GO BACK – The Go Back button enables you to reset the current position of the brush to its last position. This means that you can carry out several movements from the same origin.

9 CYCLIC – By setting the Cyclic option you can force *DPaint* to loop back on itself when the process of rendering reaches the last frame.

10 CLEAR – The Clear gadget clears the current brush movement settings.

11 MOVE – The two arrow-like gadgets in the Move panel control the direction of the brush movement. If you select the Go From button (the left hand button), the brush movement settings move the brush away from the place where you last stamped it. The opposite to this is the Come To button that paints the brush movement towards the position where you last stamped the brush.

12 FILL – Instead of drawing just a single brush, clicking on the Fill gadget will instruct *DPaint* to perform the brush movement as a screen fill operation.

13 DRAW – Once you're happy with your brush movement, click on the Draw gadget and it will be rendered into the number of frames that you have specified with the Count gadget.

14 PREVIEW – Clicking on this gadget gives you an instant preview of the movement of the brush as defined by the current movement settings. Note that *DPaint* doesn't show the brush itself – instead, an outline of the brush is used so that the rendering speed isn't slowed down to much.

15 TRAILS – The Trails option forces *DPaint* to carry the cumulative effect of each frame forward as its draws, resulting in a trailing effect. Try it and see.

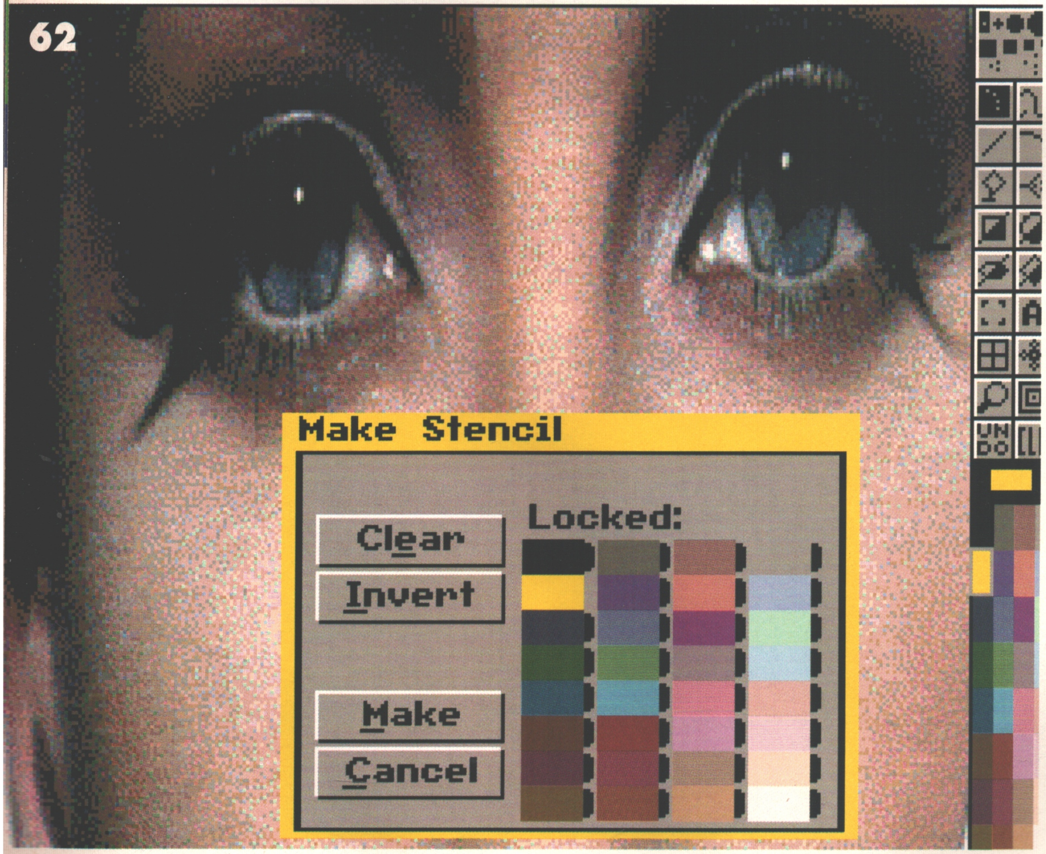
16 RECORD – The three Record buttons control the direction in which the brush movement is rendered. For example, if you click on the Reverse button, the animation will be rendered in Reverse. Clicking on the Pause gadget will cause the entire brush movement to be rendered into a single frame.

17 LOAD/SAVE – *DPaint* enables you to build up your own library of commonly used movements. It is particularly useful if, for example, you use a particular effect a great deal (such as a spin accompanied by a tumble), then you can use these two gadgets to load in and save the settings required.

18 EXIT – Once you're happy with all your brush movements, click on this gadget to return to *DPaint*'s normal painting mode.

19 CANCEL – If you feel that you've made a total pig's ear of your brush animation, then click on this gadget and all will be forgotten.

To convert an image from medium resolution mode to low resolution you don't have to put it through an image processing program, you can do it in *DPaint* by loading it in medium resolution and selecting Screen Format,



Use the stencil function to lock and unlock colours. In this example all colours except yellow are locked, so that when you use the paint option you will only overwrite the yellow Pixels.

separately. When both images have been reduced, set *DPaint* to 32-colour mode and then load the foreground image first. Now click on the colour selector with the right mouse button to bring up the Palette Requester and then copy the first 16 colours to the second half of the palette (colour 0 to colour 16, colour 1 to colour 17 and so on).

When this is done, pick up the entire screen as a brush and save it to disk using the Brush Save function. Now load the background image and when *DPaint* asks you whether you'd like to switch to 16-colour mode, select No. After the image has finished loading, the second half of the palette should remain intact. Now load the brush that you saved earlier and select Remap from the sub-menu Brush in the Color pull down menu.

After a couple of seconds, the brush should be remapped to use the second half of the colour palette. Once this is done, position the foreground image, stamp it down with a click on the left mouse button and the job is done.

Do I convert?

Q I've got a couple of 24-bit images generated by a ray-tracing program that I'd like to play around with in *DPaint 4 AGA* on my Amiga A1200. Do I need to convert the images to an Amiga screen mode before I can use them?

A No, there's no need to convert them, you can just load them into *DPaint AGA* and the program will convert the image for you. If you've got an earlier version of *DPaint* you won't be able to do this because the facility is only available with *DPaint 4* (both the normal HAM and AGA versions).

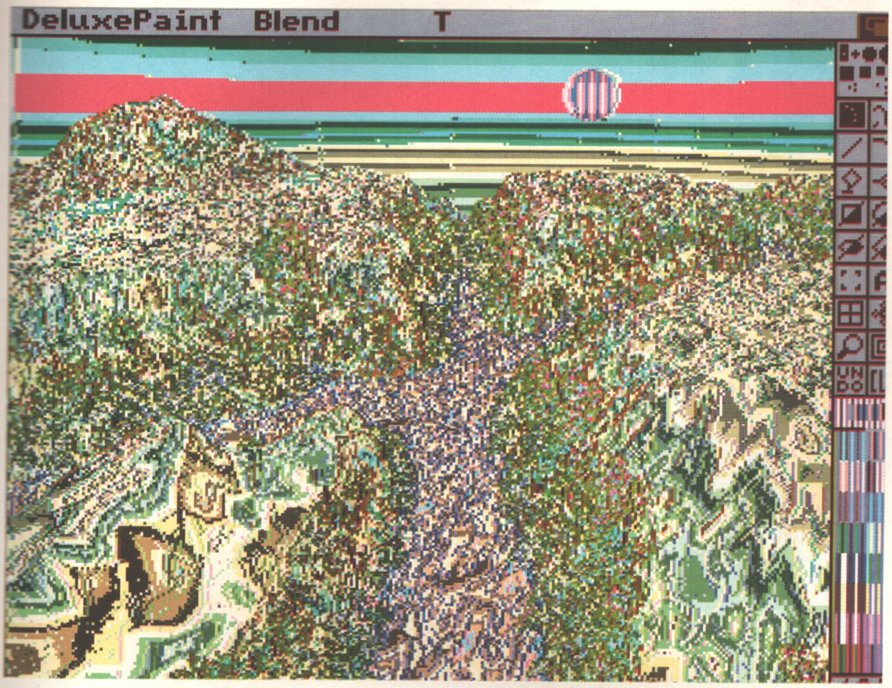
What's new?

Q What are the differences between *DPaint AGA* and the previous *DPaint* packages?

A *DPaint AGA* is an upgrade of *DPaint 4*, that makes use of the new Amiga AGA chip set found in the A1200 and A4000. The Amigas equipped with the AGA (Advanced Graphics Adaptor) chip set don't rely soley on the Central Processing Unit for all the number crunching, but delegate certain functions to the AGA chips.

This means that the Amiga's graphics capabilities are vastly increased – it can use a 256,000 colour mode in graphics programs such as *DPaint*. The *DPaint AGA* package was designed to take advantage of the improved graphics capabilities, so it's really an upgrade of *DPaint 4* that is compatible with the AGA chip set.

However, Electronic Arts has also included some new features in *DPaint AGA*. These include its ability to load 24-bit images. It can't save them to memory but converts them to whatever mode you choose, such as 256 colour or low resolution. *DPaint AGA* also supports 8-bit and HAM-8 anims and anim brushes, and you can cut and paste to the clipboard, and therefore to other programs. AppIcons and AppMenus can be be used, just drop a picture icon on to the AppIcon on the Workbench and it is loaded into the program and displayed.



***DPaint AGA* is an upgrade of *DPaint 4* that takes advantage of the Amiga's new AGA chip set, found in the A1200 and A4000, to enable you to create even more stunning images than you could before.**

DPaint AGA also includes a Rub Thru function that enables you to blend objects into a scene, and can produce some remarkable results. All in all *DPaint AGA* is a pretty stunning package. It received a 90 per cent **Amiga Format** *Gold* rating in March (**AF** 44) even though the reviewer felt that some of the tools could have been improved to make more use of the capabilities of the AGA chip set.

For example, DPaint AGA could do with a better airbrush, and more image processing features such as negative, emboss, blur and convolution. It's good, but could be improved and probably will be.

Old daze

Q My friend, who has an A1000, owns a copy of the original *Deluxe Paint* (yes, the NTSC only version). I have a copy of *DPaint AGA*, and I gave him copies of a couple of pictures that I had produced in *DPaint*'s 32-colour low resolution mode. Although the images load fine into my *DPaint*, they won't load into his original copy of *DPaint*. What's going on?

A You've stumbled across a problem that plagues most graphics users who rely on older versions of software. Because the IFF standard is forever being enhanced and extended, older programs often fall over when you feed them a file created by a modern package such as *DPaint AGA*.

In your case, *DPaint l* cannot load your pictures because *DPaint AGA* (and indeed all versions of *DPaint* from version 2.0) compress picture files using Electronic Arts' very clever CMP Byte Run 1 compression algorhythm and this is the reason why your friend's version of the original program won't load images from *DPaint AGA*.

Our advice is to tell your friend to stop living in the past (after all *DPaint l* is more than eight years old) and to go out and buy a more modern version – *DPaint 3* at least.

Tooled up

Q Why is it that when I load certain digitised images into *DPaint*, I cannot see the tool bar? Is there any way of correcting this?

A This is quite a common problem with versions of *DPaint* before version 4. Because *DPaint 4* uses a toolbar that contains three colours, it remaps itself to the nearest set of colours that will give a good contrast between the various tool gadgets and the background.

This is not so with *DPaint 3* or less. In these versions of the program the toolbox is permanently drawn using colour's 0 and 1, so if you load a digitised image that has these two colour registers set with almost identical colours, you're stuck.

The best way to get around this problem is to remap the image yourself using *DPaint*'s Stencil function. Even if you can't see a blind thing, move the mouse pointer over the tool bar and click on the colour indicator with the right mouse button to bring up the Palette Requester (or, alternatively, just press the P key).

Although you may not be able to see it, the Palette Requester should pop up on to the screen. Because *DPaint* always defaults to editing colour 0, move the mouse pointer over to the lefthand side of the requester and click until colour 0 starts to change. By now, you should start to see *DPaint*'s Palette Requester and toolbar. Set the background colour to something that contrasts with colour 0 and then swap over colours 0 and 1 using the Ex (Exchange) button. Don't worry if your image looks garish – we'll correct that now.

Exit from the Palette Requester and then select the Stencil function. Click on colour 1 and then click on Reverse and then Make. When the Stencil requester disappears, select colour 0, click on the filled rectangle tool and then drag out a rectangle that fills the entire screen.

Normally this would destroy the screen's previous contents, but this time (because of the Stencil) all it should remove is every pixel that uses colour 1 leaving you with a picture that looks like the original without fouling up the *DPaint* toolbar colours.

Which program?

Q I currently own an A600 but I'm thinking about upgrading to an A1200. If I purchase *DPaint 4*, will it be possible for me to trade in my program for a copy of *DPaint 4 AGA* when I buy my new machine?

A Electronic Arts runs a very generous upgrade scheme for most of its Amiga products, but to be perfectly honest, you don't really need to upgrade – just buy *DPaint 4 AGA* in the first place.

Although Electronic Arts doesn't really advertise the fact, *DPaint 4 AGA* will in fact run on any Amiga, not just the A1200, providing that it is running Workbench 2.04 or better. If you run *DPaint 4 AGA* on your A600 you won't be able to take advantage of the new AGA screen modes, but the program will enable you to use the A600's Productivity and SuperHiRes modes (something that the standard release of *DPaint 4* can't do).

What's more, *DPaint 4 AGA* is fully 24-bit file compatible and will even enable you to convert AGA images to standard Amiga screen modes making it far more useable than the 'official' *DPaint 4* for the A600. Take our advice – ignore *DPaint 4*, and go for *DPaint 4 AGA* instead!

What's my line?

Q Having recently bought *DPaint 4 AGA*, I've noticed that many of the gadget labels used within its requesters have little lines underneath the first letter of the label. What are they for?

A The little underlines are an idea brought across from the PC Windows environment that effectively enable you to select a gadget via the keyboard simply by pressing the key that is underlined.

For example, if you have a gadget labelled Print and the letter P is underlined, you can select this gadget simply by pressing P on the keyboard.

Under pressure

Q Why won't the pressure sensitivity option in *Deluxe Paint AGA* work?

A The pressure sensitivity option in *DPaint 4 AGA* won't work unless you have a pressure sensitive tablet such as those manufactured by TriMedia Inc. in the States.

Even with the correct touch tablet, you'll also need the TriMedia driver software that comes in the form of a disk-based function library called Tablet.Library. Contact Electronic Arts (0753 549442) for more details.

Perfect symmetry

Q If I'm drawing a symmetrical object is there any way I can draw half of it and then copy it.

A Just draw one half, pick it up as a brush , press x or y to flip the brush horizontally or vertically and then paste it down next to the original.

Those two extra bitplanes offered by HAM-8 over normal HAM mode really make a difference.

IN THE PICTURE

If you're not sure how to dither, or you're not entirely clear about the difference between JPEG and MPEG, then we can provide the light at the end of your tunnel

File formats

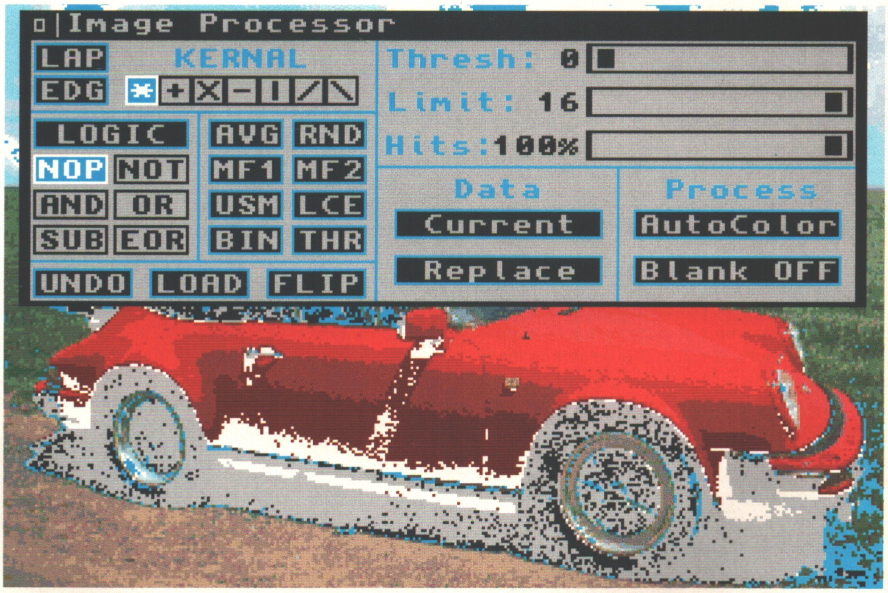
Q When I was searching through some old Public Domain disks, I came across some IFF images in what the documentation called ACBM format. I understand that there is also an IFF PBM format for storing images. Are these two formats compatible with ILBM format images?

A Contrary to what many Amiga users seem to think, IFF (Interchange File Format) is not solely an Amiga format. Electronic Arts (who devised the original Amiga adaptation of the IFF specification) based Amiga IFF around the IFF file format created by them for use on the Macintosh.

In the early stages of development, two different versions of the IFF standard were used for storing image files – IFF ILBM (InterLeaved BitMap) and IFF ACBM (Amiga Continuous BitMap) format. ACBM format was designed primarily for use with Commodore's original AmigaBASIC and its own attempt at a graphics package, *GraphiCraft* (anyone remember that one?).

The only real difference between ACBM and ILBM was the way in which the body data (the information that made up the picture) was held. Instead of holding body data in an interleaved format (as used by the ILBM format), ACBM files have pixel data stored as continuous streams of data. Although this made for faster loading times, ACBM files were potentially huge. PBM (Packed BitMap) format IFF images are a fairly new adaptation of the IFF standard that isn't really an Amiga format at all.

Electronic Arts devised PBM format for use with its PC versions of *DPaint*. As a result, images created in the PC version of *DPaint* will only load into the Amiga version with *DPaint 4* or *DPaint AGA*.



An image processing program enables you to manipulate images and to convert image file formats. For an in depth look at image processing, turn to page 68.

Due process

Q What are the main uses of an image processing program?

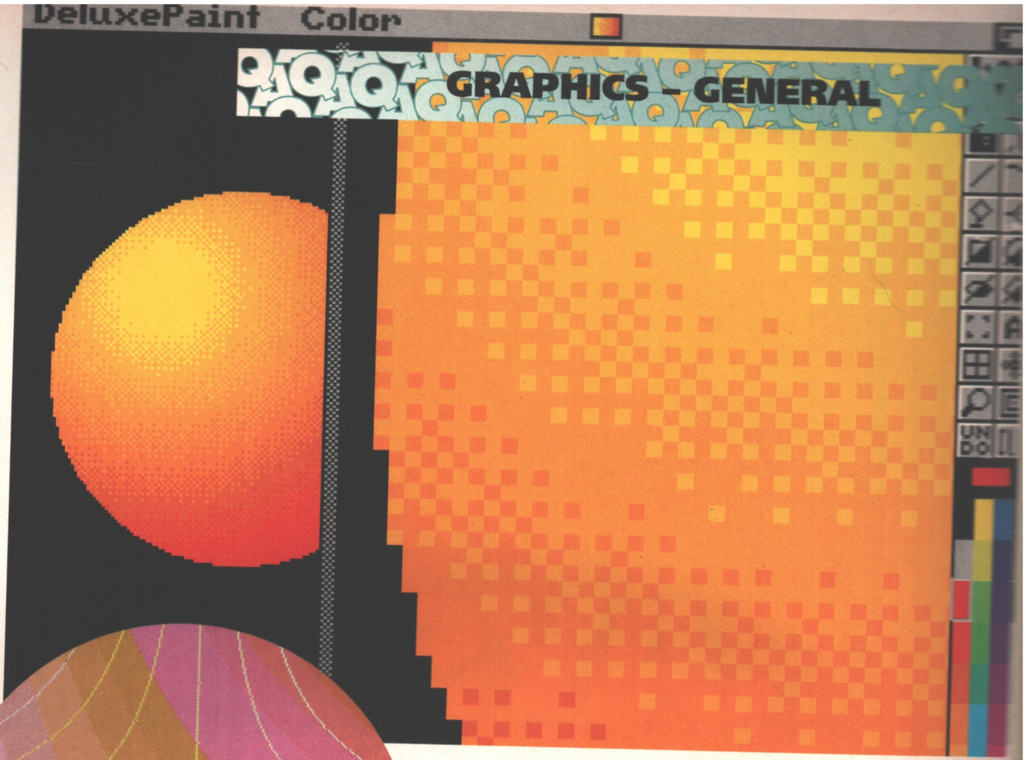
A An image processing program is a piece of software specifically designed to manipulate graphic images. Most modern image processing programs are capable of performing two different tasks – the conversion of image file formats and the manipulation of graphic data. Image conversion is pretty straightforward – if you've got an image in one format (say, PCX format), you can use an image processing program to convert it to another file format (IFF format, for example). Because there are so many different file formats in use across the huge range of different computer makes and models, this image conversion ability is very important indeed.

Take **Amiga Format**, for example. We use image processing programs such as *Art Department Professional* on the Amiga and *Adobe PhotoShop 2* on the Macintosh extensively when working on the images you see in the magazine.

Because the Mac and Amiga don't use the same image file formats, we have to convert the IFF files we grab from the Amiga to the Mac's PICT format before we can pull them into our *Quark Xpress* DTP system. When it comes to 24-bit files it's even more of a problem – without an image processing program, we would never have been able to bring you the sort of images you see within these pages!

But the real power of an image processing program is its ability to manipulate images. Say, for example, you had grabbed a HAM picture using a digitiser but the final image was slightly too dark for your needs. Unless you felt adventurous enough to modify the palette yourself using a HAM paint program (a rather hit or miss affair at the best of times), you'd be stuck with the dark images.

With an image processing program, you can easily adjust the brightness, contrast and the amount of red, green or blue in an image. More professional image processing programs offer more exotic operations such as, scaling, cropping, wrapping and even image composition. The three top Amiga image processing programs are ASDG's *Art Department Professional* (£179.95 from Silica on 081-309 5000); Black Belt System's *ImageMaster 2*, and GVP's *ImageFX* (£249 from Silica).



Dithering increases the number of visible colours without actually adding 'real' colours.

Easily compressed

Q I've started producing ray-traced images on my A1200 using the machine's impressive HAM-8 graphics mode at a resolution of 1280 by 512. The problem I have is that the image files are rather large. I only have a 20Mb hard drive, so every extra byte of saved disk space is needed. What's the most efficient image compression software available?

A The most efficient image compression system commonly available for the Amiga is the JPEG format that was introduced to the Amiga community by ASDG with its *Art Department Professional* image processing program. JPEG can compress image files of a couple of megabytes in size to 100k or less with little loss in image quality.

Bits and bobs

Q Why are image files often referred to as 8-bit or 24-bit? What do these figures mean? Also, what's the difference between a 24-bit palette and a 24-bit image?

A Images are referred to in terms of bits to denote the number of bitplanes they use. The more bitplanes that an image uses, the more colours it can display. For example, an 8-bit picture uses 8 bitplanes which (with our trusty calculator in hand) enables you to display up to 256 colours on screen at once (8x8x8x8x8x8x8x8 = 256). A 24-bit image, therefore, uses 24 bitplanes which will enable up to 16.8 million colours to be displayed on your screen at the same time

It is important not to confuse the bit rating of an image with the bit rating of a computer's colour palette. The A1200, for example, offers a full 24-bit palette but it is not capable of displaying a 24-bit image. That said, the A1200's HAM-8 mode is about as close to 'true colour' as most of us will ever need.

If you think about it, HAM-8 could easily be mistaken for 24-bit. After all, a low resolution 320 by 256 colour image only offers 81,920 screen pixels anyway, so this is the maximum number of colours that could possibly be shown on a low resolution display. Even in SuperHiRes mode (1280 by 512), there are only a maximum of 655,360 pixels available, so you still couldn't display a true 24-bit image at that sort of resolution.

HAM and chips

Q What's the difference between HAM and HAM-8?

A The only real difference between HAM (Hold And Modify) and HAM-8 is the number of bitplanes that they use and the fact that HAM-8 is only available on AGA chip set equipped Amigas.

Ordinary HAM uses 6 bitplanes which enables a maximum of 4096 colours to be displayed whereas HAM-8 uses 8 bitplanes (hence the name, HAM-8). Two extra bitplanes may not seem to make a lot of difference, but they do.

HAM-8 is capable of displaying 258,000 more colours than ordinary HAM. Obviously this is restricted by the resolution of the image (a 320 by 256 image only has 81920 pixels), but the capacity to display the colours is there.

PC pictures

Q A friend of mine gave me some PC pictures in PCX format. Is it possible to display these images on the Amiga and edit them in *DPaint*?

A No, I'm afraid PCX format images are totally incompatible with the Amiga's IFF format. If you want to convert them to IFF then you'll need an image processing package such as ASDG's excellent *Art Department Professional*. Alternatively, it may be worth having a chat with your friendly Public Domain suppliers – they should be able to find you a utility that will convert PCX format images to IFF.

JPEG and MPEG

Q What's the difference between JPEG (Joint Photographic Experts Group) and MPEG (Motion Picture Experts Group)?

A JPEG is designed for the compression of single images whereas MPEG is for the compression of full motion digital video. The other difference is that JPEG is available now and MPEG is still not with us after years of development.

Dither hither

Q What is dithering?

A Dithering is a software technique that attempts to increase the number of apparent visible colours without actually adding 'real' colours. It does this by using dither patterns between two shades of a colour. For example, if you have a red and a yellow in your picture you could use a dither pattern to create a sort of orange shade without increasing the size of the colour palette. Dither patterns simply mix the two colours (red and yellow) to create additional shades. Dithering is used extensively by digitisers and many image processing programs enable you to dither images when you decrease the number of colours within an image.

It takes just two light sources in this image to create the contrast and highlights across the body. One light is located above the bonnet, the other in the bottom left corner.

RAYS YOUR STANDARDS

The Amiga is the ideal graphics tool, but you can use it for more than *DPaint*'ing. How about trying out some three-dimensional image-creating? We answer this and other 3D-type questions

What's it all about eh?

Q **What is ray-tracing?**

A Ray-tracing is a method of producing photo-realistic images. It uses 3D images combined with algorithms dealing with the behaviour of light. More simply, it makes an image by tracing the paths of light that come into contact with an object.

The light programs

Q **What sort of programs are available to produce ray-traced images?**

A Try *Caligari* (expensive at £379, but very powerful and fast), *Imagine2 (Format-Gold* worthy costing £269), or the awesome *Real 3D 2* (approx £400). Another popular program is *Lightwave*, but this is only available with the Video Toaster. There is also a shareware ray-tracer called *C-Light* which is a fair introduction to the world of ray-tracing.

Rendered useful

Q **What exactly is rendering?**

A Rendering is the process of producing a screen image after the information about the image has been collated by the ray-tracing program. It involves taking the 3D 'objects', calculating how and where the light(s) falls and creating the image from this information. Be warned though, rendering a complex image can take several hours or even days, depending on the speed of your Amiga.

What's the object

Q **What exactly are 'objects'?**

A Objects are the basis of ray-tracing. They are the 3D models which are used to produce the final images. They can be anything from simple models (a piece of paper) to a complex model of a nuclear submarine.

Storing objects

Q **How are objects commonly stored in ray-tracing programs?**

A Programs such as *Imagine* and *Caligari* store objects as a series of points, and the area between them. An object will be stored as a list of three-dimensional co-ordinates, and the surfaces between these points.

Real 3D holds objects in a different way. Each object is stored as a series of mathematical equations that describe its surface. When you load the object into the program, the Amiga uses these equations to calculate how to draw the object on screen.

A500s and RAM

Q **Is my 1Mb A500 suitable for ray-tracing?**

A Although you can run ray-tracers, 1Mb of memory will be extremely limiting, if you want to build complex or hi-res objects or images.

To use ray-tracers to their full extent, you`ll need at least 3Mb of memory. An accelerator card that includes an FPU (Floating Point Unit) is a good-idea. This is a special chip designed for floating point maths, the kind of maths that ray-tracing uses. An FPU will vastly increase the speed at which images are created and rendered.

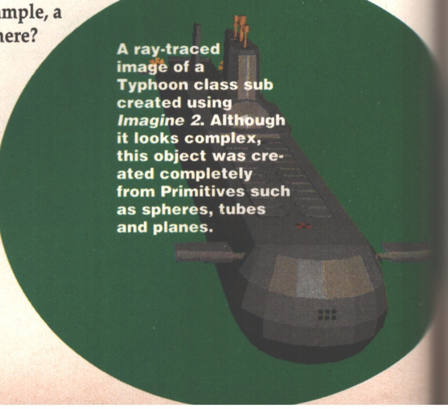
You the viewer

Q **How do you view objects when you're editing them in a program?**

A All programs use something called a `plan view' that gives you three different windows (top view and two side views). Together, they give you an overall picture of the object. *Imagine* uses a fourth window to give you a wireframe or shaded image of the object. *Real 3D* also uses wireframe.

The act of creation

Q **How can I create a simple object, for example, a sphere?**



A ray-traced image of a Typhoon class sub created using *Imagine 2*. Although it looks complex, this object was created completely from Primitives such as spheres, tubes and planes.

A In *Imagine*, select the sub item Primitive from the Add Item of the Functions menu. In *Real 3D*, select the button for the type of object you wish to create from the toolbox at the bottom right of the screen. Using either of these methods you can create a number of simple objects, such as spheres, cubes and cones. These are called Primitives. You'll be surprised how many objects can be built from Primitives. Take a look around, and see how most objects are composed of simple shapes. Don`t forget that it`s not difficult to start from a Primitive and bend, shape and warp until you get to the object you want to build.

Highlight your image

Q When I render my image, the objects always come out looking very flat, with no highlights. Why?

A The programs assume there`s a certain amount of ambient light that produces uniform lighting. This means that there will be no contrast, and the resulting picture will be flat and boring. You need to put highlights on the objects by adding lights. Place at least one light source between the camera and the object.

Vases, cups & bulbs

Q How do I create symmetrical objects such as cups, vases and lightbulbs?

A You`ll need to use either the *Imagine* Rotate tool or the *Real 3D* Lathe. For both, you need to define half of a cross-section of the object. Then use the tool to spin the edge through 360 degrees creating the surface of the object as it goes. Even if you`re dealing with an unsymetrical object, this is a good starting point, because you'll be able to take the part to be altered and change it as required.

Objects of desire

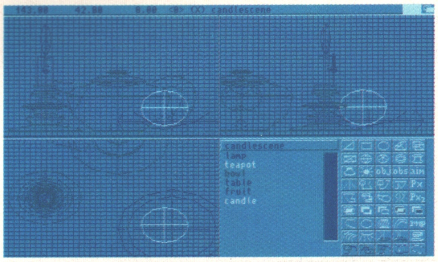
Q I want to build a complex object, but I don`t know where to start. What do you suggest?

A With any complex object, the first thing to do is to break it down into smaller, simpler ones. You can create these individually and join them together when they`re finished. For instance, if you`re modelling a submarine, you should create the hull, conning tower, propeller, control fins, torpedoes and missiles separately, and join them together once complete. Don`t worry too much about getting the sizes right while building, as you can deal with this once they`re all completed.

Confused editors

Q I'm rather confused about what the various editors are for in *Imagine*. Can you clarify what each of them is used for?

A **Project Editor** – Overall control of the rendering and of the project in use.
Forms Editor – Creating and editing objects which are symmetrical
Detail Editor – Editing all objects



The editor screen in *Real 3D*. Objects in *Real 3D* aren't represented as points, but as edges.

Cycle Editor – For creating and modifying objects which are animated in a regular, repeated fashion, such as a person walking or a whale moving its tail.
Stage Editor – Control of the placing and movement of objects, and the lighting
Action Editor – Overall control of what objects are present in the animation, and at which point. Special effects and morphing are also controlled from here.

Q I've created an object, and I want to animate it. How do I make it move?

A If you're using *Imagine*, you'll need to put the object on a path. This is defined like any other object, but it doesn't have any surfaces.

Select the sub-item `Open Path` from the item `Add` of the Function menu in the Detail editor, where you create objects. This creates a path that can be edited like any other object.

You can also create circular paths by selecting `Closed Path` from the `Add` item. Save this, go into the Stage editor and load it. Save the changes and go into the Action editor.

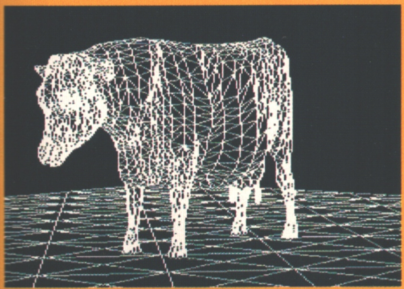
Delete the position bar for the moving object, and add a new one, selecting `Follow Path`.

You'll then need to enter the name of the path. Save the changes again, and go into the stage editor. The object will now be positioned on the path.

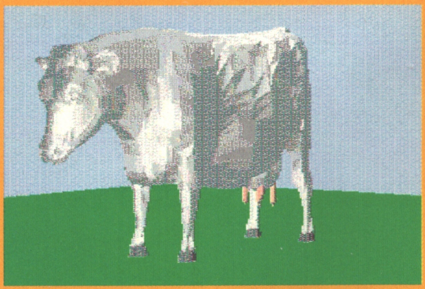
The animation facilities of *Real 3D* are not as powerful as *Imagine*, but are still able to deliver excellent results. To move an object, select `Orbit` from the Animation item of the Projects menu. Clicking with the left mouse button in any of the views will then create another point on the path. The right button completes the path.

And there you have, a least a few steps on your way to some highly impressive images. You'll need the software and at least 3Mb of RAM to get started, but these are well-worth having anyway!

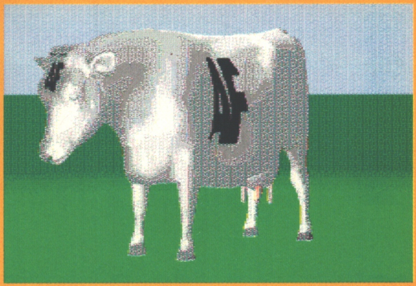
Holy Cows or three steps to rendering



An image produced in the B/W Wire mode of *Imagine*. Not the most complex of images, this one took about 50 seconds to render on an A1200.



Colour shade mode gives a better idea of the final outcome, but no smoothing or brush mapping. This one took one minute and twenty five seconds before it was completed.



Scanline mode adds smoothing, brush mapping (the AF logo on the cow`s side) and more accurate colours. This took around seven and a half minutes to complete.

Q I`ve created my objects, and I want to generate an image. However, I don`t know in which mode to render the image in. Which is the best?

A **The different modes are designed for different uses. The B/W Wire and B/W Shade (*Imagine*) or Fast (*Real 3D*) gives you a wire frame or shaded image, but this will not take into account any of the attributes (such as colour, texture and mapping). These pictures will be rendered very quickly, and this is a useful way of checking that your pictures look as you expect them to.**

The Colour Wire, Colour Shade (*Imagine*), Lampless and Shadowless (*Real 3D*) produce images in colour, but still without the full range of properties which the program can use.

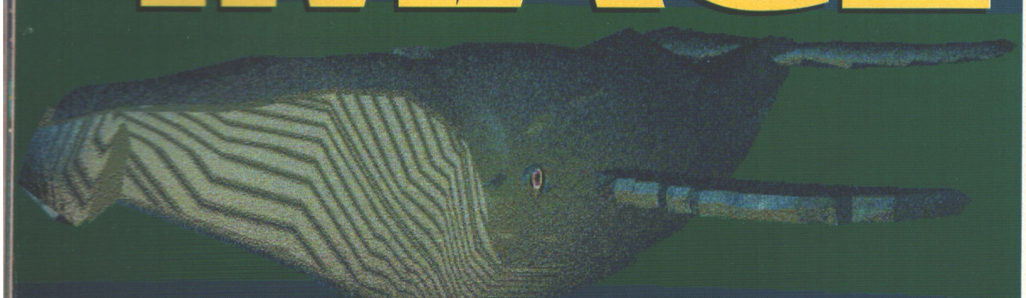
Consequently, they will take slightly longer to generate.

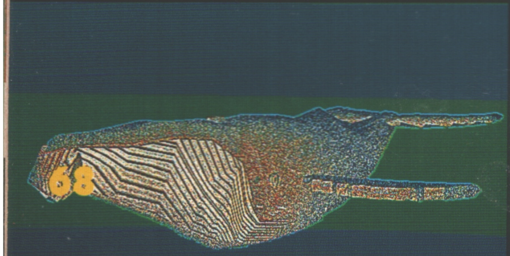
Scanline (*Imagine*) and Normal (*Real 3D*) take longer still, but the image will include all of the attributes of the object, including any textures, image mapping or reflections from its surroundings. Trace Mode (*Imagine*) includes shadows, which take a long time to calculate.

Personally, I use Colour Shade (*Imagine*) or Fast (*Real 3D*) to test the image, and Scanline (*Imagine*) or Normal (*Real 3D*) for most of the final images.

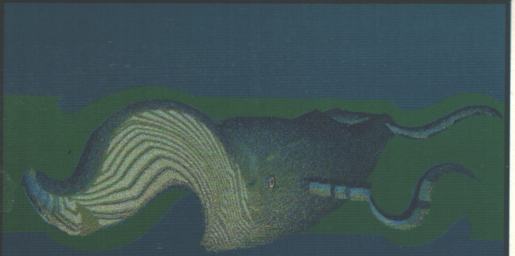
We only use Trace if it`s really necessary, because it does add a lot of extra processing time.

IMAGE MAKERS





Putting the ray-traced whale seen above through the Convolve operator gives you the sort of whale that you're not likely to see in a legal state of mind.



Applying the Twirl operator to the whale's extremities produces results likely to worry most of the sea going mammalian population of the planet.

We all know that image is important, but if you want to find out why you need an image processor, and why we recommend that you chose *Art Department Professional*, read on...

What is it all about?

Q **Can we forget the hype, can you tell me what image processing actually programs do?**

A They process and prepare images. This can involve anything from changing the format of a file, or adding special effects, to making a composite of several different images.

Weird & wonderful

Q **I've heard that *AdPro* can do weird and wonderful things to images. Is this true?**

A *AdPro* includes 41 Operators that can be used to process images. *AdPro* holds images in memory in a way that`s independent of the image format, so operators can be applied to any image, be it a two-colour IFF file or a 24-bit JPEG.

There's a wide range of different operators here's just a taste:

Broadcast limit: this takes an image and limits the saturation of the colours, so that the image will not bleed or distort when it's recorded on to video.

Collapse: this process exaggerates the features of the original image. and can be extremely useful for creating caricatures from digitised photos.

Rem Isolated Pixels: this scans through an image and removes any pixels that are not connected with any other. This is useful for cleaning up scans captured using hand scanners that tend to generate single pixels.

Scale: useful for reducing or enlarging images. The amount of scaling can be set in both axes, so you can change the aspect ratio of an image.

Text Visual: enables you to add text to your images, using any Compugraphic font on a Workbench 2 or higher machine.

Alternatives to ADPro

Q **What alternatives are there to *ADPro?***

A Most paint programs include some image processing tools. Programs such as *ImageFX* from *GVP* (Reviewed in **AF** 45), *DPaint IV*, *Imagemaster* and *OpalPaint*, which comes with the Opalvision 24-bit graphics board, all enable you to carry out numerous image processing tasks. These programs can load various file formats, and contain a number of tools for processing images. However, they are aimed more towards creating images from scratch or editing images on a pixel by pixel level. *ADPro* is the only commercial Amiga program that`s designed exclusively to be an image processor.

PD equivalents?

Q **Are there any Public Domain equivalents that I can use for image processing?**

A Several PD image processing programs are available, although they are usually restricted to reading in one or two file formats. For instance, the PD program *VIRTGIF* converts between IFF and GIF, another program called *AUGJPEG* converts JPEG files to IFF, and the program called *IFF2PCX* will convert IFF files to PCX format for use on a PC.

PD Soft's disk number 865 (Image processors) is a good option too. If you're looking for a PD program to do weird and wonderful things such as swirl, invert colours, quake or motion blur, then try the *Digital Illusions* program on the Coverdisk of **Amiga Format** 45. It is a powerful image processing program that contains a wide variety of operators and a powerful scripting language.

A500 24-bits

Q **Can I use image processing programs to view a 24-bit image on my A500?**

A No. To view a 24-bit image in all it's 16 million-colour glory, you'll need to add a 24-bit card to your Amiga. However, most of the programs mentioned above can work on 24-bit images, even though you can't view them. With *ADPro* you can take a 24-bit image and transform it down to any resolution that your Amiga can handle. If you're using an A1200 or A4000, the new AGA modes give results that are pretty close to the quality of 24-bit.

What kind of Amiga?

Q **What sort of machine, in terms of RAM and storage, will I need to run *ADPro*?**

A *ADPro* can run on a 1Mb A500 fitted with the standard Workbench, but in order to use all the program's features you'll need at least 4Mb. If you're dealing with large 24-bit files, you'll need even more. For instance, a 1,024 by 1,024 pixel 24-bit IFF file will need in excess of 8Mb, because *ADPro* uses two buffers (one for loading and one for saving). We would also recommend a hard disk if you want to store your images!

Imagine and Real3D

Q **I want to view my ray-traced images in the new AGA modes, but neither *Imagine* nor *Real 3D* will enable me to use these modes. How can I get around this?**

A Save them as 24-bit images, and import them into *ADPro*, the latest version of which supports the new modes. You can then convert them

into any resolution you wish, and save them for loading into programs such as *DPaint IV AGA* or *Personal Paint* where you`ll be able to edit these images.

Different formats

Q Is it possible for me to combine images stored in different file formats?

A The way that *ADPro* loads images makes the type of image loaded irrelevant (see the box to the upper right).

This means that you can combine several images with ease, even if one is a 24-bit JPEG, another is a 256-colour GIF, and the third is a 21-bit *DigiView* grab. Combining images is simple. Clicking on the button marked Replc, switches it to Comp mode. Loading a new image now brings up the Composition Control menu.

Now you can control how the new image is loaded, and which parts of the old image are kept. You can load in the whole image, or set one colour to be transparent, so the image already in memory will show through the transparent areas of the new picture, enabling you to construct some pretty dazzling images. It must be said that *ADPro* is becoming one of the standard pieces of software in the ***Amiga Format*** offices.

Automatic for you

Q I`ve got a large number of files that I want to process. Can *ADPro* make my life easier by automating this and can I animate using *ADPro*?

A Yes. *ADPro* comes with a batch processing utility called FRED, that you can use to carry out the same operation on a number of images. You can also use it to create animated effects. Batch processing using FRED produces a series of files, each with a frame number at the end. As for animating, *ADPro* can`t produce animation files directly but if you want to create an Anim file, you can either use *DPaint*, that can load in a series of images as an animation, or the PD program *Animbuild*, that will take the images and combine them into an anim file for viewing with any standard utility.

Q Can *ADPro* or similar programs process live video images?

A No. They can only work with images that have been stored in memory. If you want to process live video images, you`ll need a device such as the Video Toaster, an incredibly powerful video processing system. Unfortunately Video Toaster is not available in this country. Although the company that manufactures it (Newtek, based in Kansas in the USA) has been saying that a PAL (The UK television system) version of the Video Toaster will be available `in the near future` for the last couple of years, there's no sign of it on the horizon. However, the Opalvision 24-bit graphics board is now available for around £600, and the real-time video processor unit (called the Video Roaster) should be released this summer. According to the people who are designing it, the Video Roaster unit will out-perform the Video Toaster by offering facilities such as real-time 24-bit frame grabbing, professional quality genlocking and real-time video effects. But we'll have to wait and see.

What does that file mean?

Q What types of graphics file can ADPro deal with?

A When a file is loaded, the loader translates it into an internal, *ADPro*, format so you can then save in any of the other formats that *AdPro* supports. You can also view the file in any mode that your Amiga will support. Please also note that several flatbed scanners (The Epson GT6500 for example) and graphics cards (Opalvision for example) include modules, either bundled with the hardware, or available as extras, that enable you to control them directly from *AdPro*. See below for out detailed list of file formats.

Loading files:

LOADER	FULL NAME	MACHINES	PROGRAMS	24BIT?	COLOURS
BMP	Windows bitmap	IBM PC	Windows Paintbrush	N	256
DPIIE	Deluxe paint II Enhanced	IBM PC	DPaint II Enhanced	N	256
DV21	Digi View 3.0	Amiga	Digi View 3.0 only	Y	16 Million
GIF	Graphics Interchange Format	Multi format	Various	N	256
IFF	Interchange File Format	Amiga	Various	Y	16 Million
Impulse	Impulse file format	Amiga	Imagine,Turbo Silver	Y	16 Million
JPEG	Joint Photographic Expert group		Opalpaint, photoshop	Y	16 Million
MACPAINT	Macintosh Paint	Apple Mac	Macintosh Paint	N	2
PCX		IBM PC	PC Paint Brush	N	256
QRT		Apple Mac	DKB Racetrace	Y	16 Million
SCULPT	Sculpt	Amiga	Sculpt Animate 4D	Y	16 Million

framebuffers and graphics cards:

LOADER	MANUFACTURER	NUMBER OF COLOURS
A2410	Commodore	256
FC24	Impulse	16 Million
FRAMEBUFFER	Mimetics	16 Million
HAM-E	Black Belt graphics	256,000
HARLEQUIN	Amiga Centre Scotland	16 Million
IV24	GVP	16 Million
OPALVISION	Centaur Developments	16 Million
RESOLVER	DMI	256

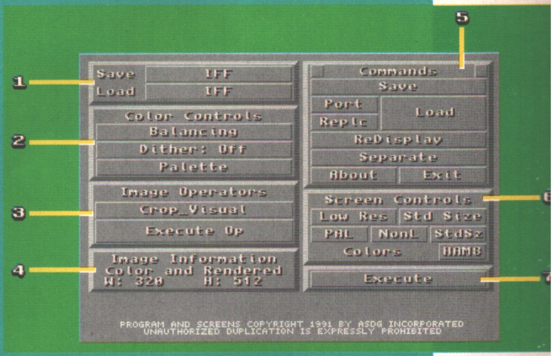
Others :

POSTSCRIPT	Page description language. Used in high end printers
PREFPRINTER	Prints to the printer set up in preferences
SEPARATE	Produces 3 or 4 colour separations

Is ADPro really so complex?

Q Being somewhat new to all this, I'm confused by ADPro. Can you give me an overview of how it works?

A *Art Department Pro* is one of the most powerful packages available for the Amiga, but it isn't the simplest. Using *ADPro* isn't the same as operating a paint program – for a start, it performs its operations without displaying the results. If you wish to see the effect of an operation (Operator in *ADPro*), you need to click on the Execute gadget at the bottom right corner to display the processed image. Don't be intimidated by *ADPro* – its control panel screen may look complex but it's actually split into seven sections, each of which handles a particular aspect of the program's operation, like so:



1. LOAD/SAVE: By default, *ADPro* is set to both load and save in IFF format, but this can be changed to any one of a selection of its Loaders and Savers. Click on the Load or Save gadget and a list of available Loaders/Savers will be displayed. Then select the format you want and it will be used in preference to IFF.

2. COLOR CONTROLS: This panel is used to alter the brightness, contrast, gamma content and individual red, green and blue content of the current image. To increase the number of apparent colours used, you can also select a dither pattern by clicking on the Dither gadget.

3. IMAGE OPERATORS: This control panel contains just two gadgets, but this is where all the action takes place. Select the top gadget to change the current image processing operator and then click on Execute Op.

4. IMAGE INFO: This panel provides lots of useful information about the current image.

5. COMMANDS: This panel enables you to load and save image files in the format specified in the Load/Save panel, and colour separate a 24-bit image to three separate files. Images can also be combined if the Comb button is enabled.

6. SCREEN CONTROL: This panel enables you to change the format used to display a representation of the 24-bit data held in memory. *ADPro* supports all standard Amiga screen modes, including the new 256-colour and HAM8 modes. Note that setting a screen mode that differs from the image's default screen mode does not effect the data held in memory – *ADPro* keeps all its image data in full 24-bit format.

7. EXECUTE – This button is used to render the 24-bit data held in memory into a screen preview defined by the settings in the Screen Control panel.

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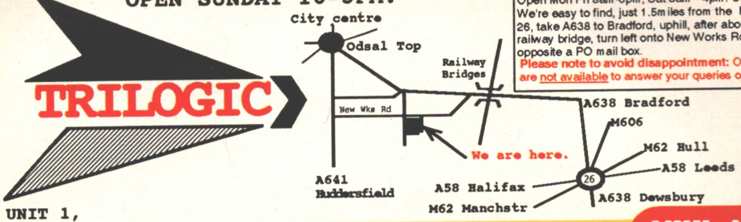

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OPTIONAL DRIVE CONTROLLER CHIP FOR GOLDEN GATE	£34.99
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AMIGA 600 1meg upgrade + clock (unpopul)	£27.99
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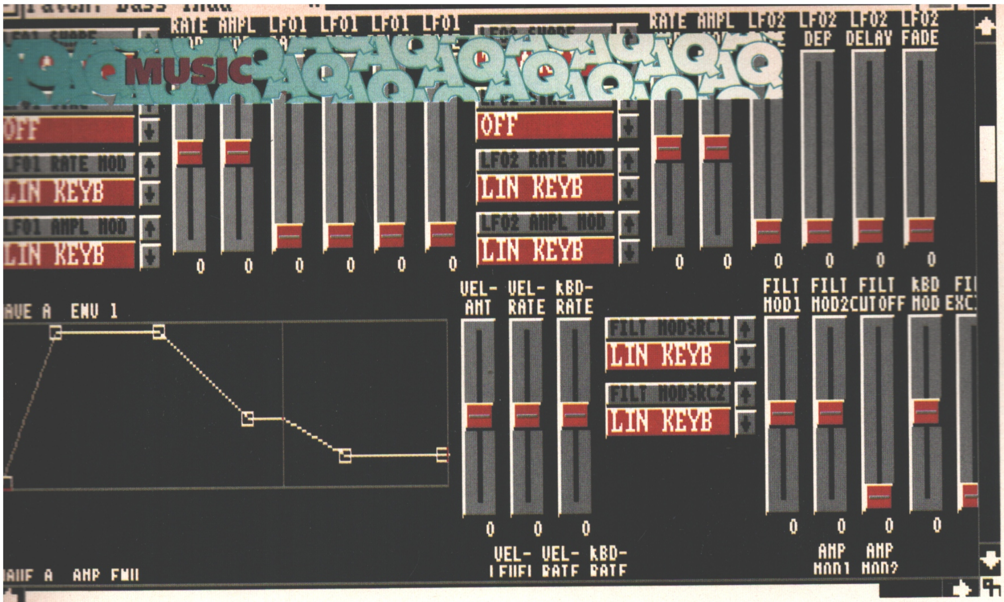
FOR A600 PCMCIA CARDS - SEE A1200 PCMCIA PRICES



Your Amiga can be used to edit and store sounds using a mouse and full-sized screen rather than a couple of buttons and a small LCD screen. But you'll need something like Dr T's *X-oR* to do it!

SOUND ADVICE

If you're using an Amiga to make music, then tune in to these top tips – they're the key to successful sounds...

Making music

Q Just how can I make music with my Amiga?

A The main use of the Amiga is as a controller for playing back sounds. This is called sequencing. A Sequencer is a program that stores information for triggering notes to play back sounds. These sounds can either be internal Amiga sounds, sampled sounds or sounds taken from connected MIDI equipment. Whatever way you want to do it, the Amiga acts as the master, playing the notes from its own sound chip or telling MIDI devices to play sounds.

Sur le Midi

Q What is MIDI?

A MIDI is the acronym of **M**usical **I**nstrument **D**igital **I**nterface, and is basically a standard language for passing messages between electronic instruments. MIDI can be used for carrying all sorts of messages, including playing notes, altering volume, changing instrument sounds and even dumping data for editing. For the most part, MIDI is used for triggering notes on external electronic instruments. A note is started by sending a MIDI 'Note On' message that tells the instrument what note to play and how hard to strike it (this striking is called the note's Velocity). To stop a note from playing, a MIDI 'Note Off' message is used. Because some MIDI instruments can respond to how quickly a note is released, the Off message also has velocity.

For extra effects, there are special MIDI messages, including Pitch Bend (to alter the pitch of a note as it plays), Aftertouch (which tells an instrument how hard a key is pressed after it has been struck) and Modulation (which is a message to alter the sound as it plays – depending on the settings on your synth).

One problem with using MIDI is that when a tune has been written using certain sounds on one piece of MIDI gear, playing the same sequence on another MIDI device can produce different sounds, since many MIDI synths have completely different instrument sounds. Some MIDI instruments offer a solution to this in the form of General MIDI which makes sure that the sounds are organised in the same way on all GM modules.

General alert

Q What is General MIDI?

A General MIDI is a specification within the usual MIDI standard. It specifies that an instrument can play 24 notes all at the same time (this is called Polyphony, and compatible synths are called Polyphonic).

General MIDI also determines the position of 128 instrument sounds in a synth's memory, so that all GM-compatible synths have, for example, the piano, bass, string and drum sounds in the same memory locations. This means that when you play a song written using one piece of GM equipment it will sound right when you play it on another.

It's a set-up

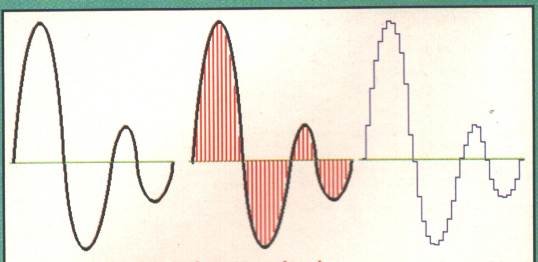
Q What do I need if I want to use my Amiga in a MIDI set-up?

A The first thing you'll need is a MIDI interface. These cost about £20 (Datel does a good one for £19.99, contact the company on 0782 744324). This plugs into the serial port of your Amiga and enables you to connect up to various MIDI devices.

The next thing you'll need is something to actually make the sounds. Any MIDI synthesiser or sound module will do, but these are quite often expensive. You can get cheap home keyboards that support MIDI for around £200 (Casio is a good bet), but these are pretty limited, so you're better off going for a module, such as the Dream GMX-1 or Yamaha's (slightly more expensive) TG-100. You'll

How Sampling Works

Sound is made from the rapid compression and de-compression of air. This action causes our eardrums to vibrate, ergo we hear sound. A Sampler measures the volume of these changes at very short intervals. Each volume change is then converted into a digit (number) by an Analogue to Digital Converter (ADC). These digits are then stored in your Amiga's memory. They are used to create a model of the real waveform. The numbers can then be played back in order to recreate the original sound.

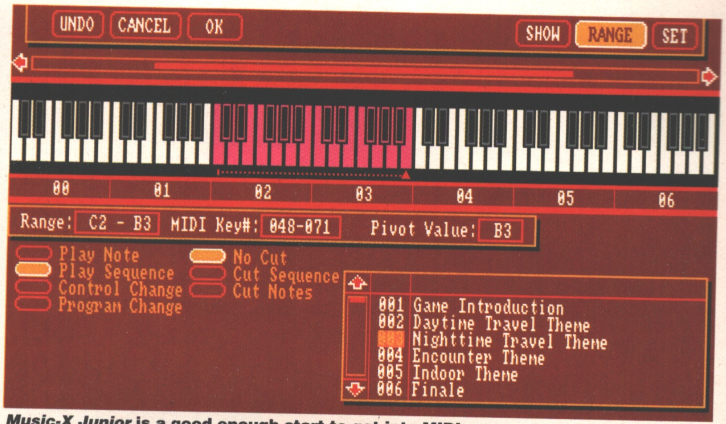


Original sound. The spikes and troughs represent the changes in volume.

The Sampler measures the volume of the waveform at a series of intervals (in red). These volume levels are then changed to numbers using an Analogue to Digital Converter.

The Amiga simulation of the original waveform – this is the 'Sample'. The volume levels can be replayed to reproduce the original sound.

Amiga sampling in the form of Ramscan's Audio Engineer Plus, but you can get the software from this package at a much lower price.



Music-X Junior **is a good enough start to get into MIDI sequencer, and it costs less than 100 quid which is a more than reasonable price to pay.**

need something to amplify the sounds, your hi-fi will do as long as it has the capability of taking external sound sources (via the Aux connectors).

That's it for the sounds, but what about creating the music? Well you'll need a sequencer program for that. The price of these depends on how much you want to do with it. Something like *Music-X Junior* might do, which can be picked up for around £70-80 (or even less if you shop around). At the other end of the scale is Dr T's *KCS 3.5* at £279. This features all manner of sequencing, score-writing and mixing tools and is more a professional tool than a beginner's system. For around £600, you can get yourself a system up and running with a MIDI sound source an interface and the software to control it.

Sequence of events

Q **What exactly does a sequencer do?**

A A sequencer is a program that acts like an advanced, computer-based tape recorder, only it records MIDI data. However, instead of recording sounds, it records the information needed to play the notes on external equipment, and then stores this information as computer data. You can edit this data to correct mistakes, alter the timing or change the pitch of notes. As well as being able to change the information after it has been recorded or created, another advantage of MIDI sequencers is that you can change the speed of the tune without changing the pitch – try changing the speed of a tape recording, it will give you a sort of Pinky and Perky effect because the pitch also increases.

MIDI-less music

Q **Can I create music using my Amiga but not using MIDI?**

A Yes. You don't have to splash out on stacks of equipment to make decent music with your Amiga. The Amiga is capable of playing high-quality sounds just using its own sound chip. Using a sampler you can record real sounds into the Amiga and play them back in a special sequencer used for playing back these samples, called a Tracker.

To start with you'll need to get some samples. You can get hold of them on Public Domain disks, but it's far better to actually record your own. To do this you need a sampler to plug into your Amiga. Again, these vary in price depending on the features they offer. Something cheap like Technosound Turbo 2 is probably a good bet, since it offers decent recording quality and enough editing options to get you started at a price of £32.99.

If you want the absolute best in Amiga sampling, you should go for Audio Engineer Plus at the whacking great price of £204.30. For your money you get a top of the range sampling cartridge and the most advanced editing software available. Even if you go for the cheaper system, you can get a version of the *Audio Engineer* software (called *Audiomaster IV*) for £75.

After recording a sample, you can edit out any unwanted bits, reverse it or even make it loop (play over and over again) before saving it to disk ready to use in your own programs.

Give us a sample

Q **What can I do with samples?**

A Samples are the basic raw materials for any sound on the Amiga. Samples are used to create the sound effects in games as well as for the instruments to create the music in games and demos. To make your own Amiga-based tunes you could use a full-blown sequencer but these are aimed more towards MIDI, and so don't offer much in the way of features for Amiga samples.

The best bet is to go for a 'Tracker' program such as Amiganuts United's *MED*. This enables you to create four-track tunes using just Amiga samples. To give you some idea of what can be achieved using this simple program, listen to Urban Shakedown's chart single of 1992, *Some Justice*, that was all created on two Amigas running *MED*.

More than four

Q **Can the Amiga play more than four sounds at any one time?**

A Strictly speaking, no. However, there are programs available that fool the Amiga into playing eight sounds at once. An example of this type of tracker is *OctaMED* (which is basically an eight-channel version of *MED*).

And there's more...

Q **What else can I use my Amiga for in a music set-up?**

A Aside from sequencing and sampling, the other main use of an Amiga in a music set-up is as an editor. By using 'MIDI System Exclusive' messages (these are messages that enable you to use data from particular manufacturer's synths), you can take sound-data from a sound module into your Amiga so that it can be edited on screen and stored on disk.

This makes it easier to control sounds (most synths only have very small editing screens) and gives you more storage space for sounds (all you have to do to get to a bank of sounds is load a file or disk). Dr T's *X-OR* can be used to edit and store data from a variety of MIDI instruments, including synths, sound modules and even effects units.

Contacts & Prices

Audio Engineer	£204.30	HB Marketing	0753 686000
Datel MIDI Interface	£19.95	Datel Electronics	0782 744324
Dream GMX-1 Tone Module	£249	Zone Distribution	071-738 5444
Dr T's *KCS*	£279	Zone Distribution	071-738 5444
Dr T's *X-oR*	£219	Zone Distribution	071-738 5444
Technosound Turbo 2	£32.99	New Dimension	0873 850028
TG-100 Tone Module	£359	Yamaha Kemble	0908 366700
Music-X Jr	£79.99	Software Business	0480 496497
MED V3.21	£ 1.25	Amiganuts Utd (169 Dale Valley Rd Hollybrook, Southampton, SO1 6QX)	
OctaMED Pro	£32(+manual) £22 (–manual)	Amiganuts United	
OctaMED	on *AF* Coverdisk 29. Back issues on 0458 74011		

COMMUNITY SPIRIT

If you want to come to terms with the world of Comms, you'll have a stack of questions. Fortunately, we've got the answers

What's BBS then eh?

Q **What is a Bulletin Board Service?**

A Perhaps the best way to think of a Bulletin Board Service is as a computerised lending library for software. In more technical terms, a BBS is a computer, called a Host, with a modem attached (and an optical, CD-ROM or hard disk), that you can contact via a telephone and a modem attached to your Amiga. The BBS is run by a person called a Sysop (System Operator).

Programs, demos, samples and many other types of Public Domain software are stored on the Host and you can copy (download) them to your Amiga or send (upload) programs from yours to it. You can also send E-Mail (electronic mail) messages to the BBS, that can be downloaded by other users, and you can download messages sent to you that are stored on the BBS. There are hundreds of BBSs in the UK, and several thousand over the world.

Modem thinking

Q **What is a modem? Why do I need one?**

A A Modem is an abbreviation of **MOD**ulator-**DEM**odulator. This is the device that enables you to communicate via the phone lines. The Amiga sends data to the modem via its serial port, this data is then converted by the modem into a form that can be transmitted down a standard telephone line.You control your modem with a set of commands, most of which begin with AT (Short for **AT**-tention). This is often known as the Hayes Command Set, and is a standard for most modern modems.

Which modem?

Q **What sort of modem should I buy, and how much will it cost me?**

A This is very much like asking what sort of car you need: it depends on how fast and how far you want to go. If you`re just beginning in Comms, and are not sure if it`s for you, buy a cheap, slow modem, such as the Supra 2400 (£79.99 from First Choice Computer Centre), or look out for a second-hand one. If you're a dedicated Comms freak, or want to download big files, you'll probably want to buy a faster one, such as the Supra V32Bis Fax Modem (£275 from Power Computing), which was awarded an ***Amiga Format*** *Gold* in issue 38. Again, much like cars, the more you pay, the faster they go and the more comfy the ride.

The title screen from the Aspects BBS downtown Manchester. Great graphics, no. Useful, oh yes!

Illegal access

Q **If I'm using my own modem, can somebody dial my number and copy files from (or to in the case of computer viruses) my Amiga without my permission?**

A No. And the more experienced among you would be surprised how often we get asked this question.

As for the less experienced user, we can understand your concern, but unless your modem is set up to receive calls, and unless you have installed the necessary software to turn your system into a full fledged BBS, there is no way anybody can gain access to your Amiga via a modem.

Baud of the rings

Q **What does 'Baud Rate' mean?**

A This is a measure of the speed data transfer. It refers to the number of bits (BInary digiTS) that can be sent per second. A typical V22 modem can receive 1200 bits (that's 150 bytes) per second. Compare this to a typical hard drive, that can read over 669,000 bytes per second.

Downloading time

Q **How long does it take to download a file?**

A This depends on the size of the file, but if we take as an example the file *PCTASK.LZH* (a PC emulator), a V22 modem would take over 6 minutes to receive this 55K file, while a V32bis would take less than a minute. As you can see, having a faster modem could make a significant difference to the size of your phone bill, if you're downloading large files or lots of mail.

Data compression

Q **What is data compression?**

A Some modems come with data compression, meaning that they can use a special chip to compress the data being sent by the modem. This means that the modem appears to send data faster, as the compression is completely invisible to the user, because it's all handled by the two modems. The two types of compression are called MNP5 and V42bis (also called LAPM).

MNP5 is, in theory, able to compress data by a factor of two and V42bis by a factor of four, but this very much depends on the type of data being transmitted. If it's already been compressed by a program such as LHA (see below), as most files held on a BBS are, then the modem won't be able to compress it much further. If you're downloading a text file, then it should make a significant difference.

If you're using a fast modem on a Workbench 1.3 Amiga, you may have problems. There are several bugs in the device that controls the serial port, which mean that it's not reliable at speeds over 9600 baud. You'll need to get hold of the Public Domain device Baud Bandit, and use this instead of the standard serial device. Installing this is easy : copy the file Baudbandit.device to your `DEVS:` directory, and set the software to use this instead of the Workbench version.

First compressions

Q **Once I've downloaded a file, will I be able to use it immediately?**

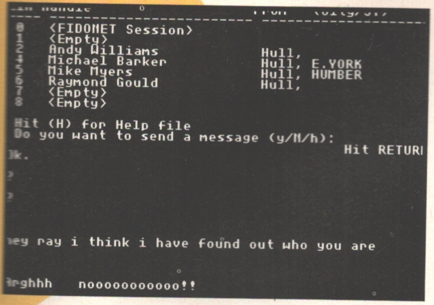
A Probably not. In order to save space (and time when you're downloading) most files are compressed. The last three letters of the compressed file tell you which compression program was used:

Suffix	Program
.LHA	LHA
.LZH	LHA
.ARC	ARC
.ZIP	PKAZIP
.ARJ	UNARJ
.ZOO	ZOO

How to uncompress

Q **So how do I uncompress these files?**

A The programs to do this will be on the BBS you got the file from, so you'll need to download them as well. The program *LHA* was also featured on the *Amiga Shopper* issue 23 coverdisk. To



In the chatline section of Metnet. This is a list of who`s on line, and what they`re doing.

decompress a file using this program compressed using the LHA or LZH method, go into the CLI and type 'LHA E [Filename]'. This will produce a list of the files as they are extracted.

Fast data

Q **How fast can modems transmit and receive all this data?**

A This depends very much on the type of modem you are using.

In order to ensure that different makes of modem can communicate with each other correctly, various rigorous standards have been set-up and agreed upon by the telecommunications industry. These standards determine the speed (in terms of bits per second) at which data is transmitted. Of course these standards do not take into consideration the amount of 'noise' there might be on a line on a given day, nor how heavy the Comms traffic might be if you are dealing with networked Amigas. They will, however, give you a rough idea of the time it should take to send a file of a given size (in bits). The standards are listed below:

Standard	Receive/Transmit speed (bits per second)
V21	1200/75
V22	1200/1200
V22bis	2400/2400
V32	9600/9600
V32bis	14400/14400

What do I do now?

Q **What happens after I've connected to a BBS?**

A The first thing you'll see is a message asking you to press the escape key [Esc] on the Amiga's keyboard. Pressing this should bring you to the title screen of the BBS at which point a prompt asking you for your name and password will appear on screen. Now all you need do for a while is follow the prompting.

If this is the first time you`ve called the BBS, you'll have to answer a few questions, that enable the Sysop to make sure that you are who you claim you are. The Sysop usually does this simply by checking your phone number.

You'll also have to choose a password when you call the BBS. As a handy security tip, make sure that you don't use the same password for two different BBSs, and don't be too obvious in your choice – no proper names or favourite football teams, these are all far too obvious. Once you've answered all the questions, you'll be taken back to the main screen to re-enter your name and your password. Entering these should take you to the main menu.

One of the main things to bear in mind if you are about the embark on your first trip around a BBS, is that you shouldn't be be afraid to experiment.

This does not mean that you shouldn't abide by the rules of the house as it were, these will be explained to you when you log on. But that you should spend some time familarising yourself with the ways of the BBS world. This experimentation now will pay large dividends in the future in terms of time spent on-line. Be prepared to waste a little time (and money) first time out.

Bear in mind that most good BBSs are designed so that you can't crash the system. And Sysops are not only used to new and inexperienced users, in fact, many of the better Sysops positively crave the input and new enthusiasm (not to mention the new files) the 'green' users bring to their BBS. So have a good look around.

If you're still not sure about something, look for the option to contact the Sysop, who should be able to help.

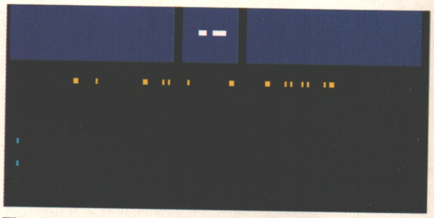
Modems as faxes?

Q **Can modems be used as fax machines?**

A The short answer to this, for the majority of modems is a big fat 'No'. However, you can amend it to 'Not unless it's specially designed to do so'. A modem can't communicate with a fax machine because the two devices use very different methods of sending data.

If you're using a modem such as the Supra V32bis Fax-modem, you will be able to send and receive faxes by using software such as *A-Fax* (A Shareware program available from most good BBS or PD companies) or the reasonably easy-to-use *GPFax* system (£39.99 from First Choice).

Both of these will enable you to send and receive faxes with the appropriate modem, but do make sure to check the compatibility of your own modem with you dealer first.


The bulletin menu of Metnet. This is where you get all of the local news about the BBS.

What software to use?

Q **What sort of software do I need to access a Bulletin Board System?**

A You'll need a comms program such as *Ncomm*, *Term* or *Baud Bandit*. These programs control the flow of data between the modem and the Amiga, and enable programs to be downloaded and uploaded. They have a bewildering number of options and settings, but most of these aren't important for the beginner. Most also contain an electronic phone book, so you can call a BBS by selecting its name from a menu.

Setting up software

Q **How do I set up comms software?**

A You'll need to set a few options. The first is the Baud rate. If you send it too fast, the modem won't be able to cope with the data. Too slow, and your modem will be waiting for you to send data before it can transmit it down the telephone line.

For a V22 modem, set it to 2400 bits per second. For a V32bis modem, a speed of 19200 should be sufficient. All of the other settings should be fine if they're left as they are. To check this, turn the modem on, load up the software and type 'AT'. If everything is working correctly, the modem should

Continued on page 76

THE AFS GOOD BBS GUIDE

Q **Can you suggest some Bulletin Board Systems I can contact?**

A **We certainly can. Below you will find our list of recommended BBSs in the UK at the moment. Of course there are many more such systems – it's probably that we haven't heard of them as yet. (As a side note, if you are a Sysop for an Amiga-related BBS, please get in touch with us at the address in the contents pages and we'll try and include you next time).**

Aspects
061 792 0260 – 24 Hours a day.
A large board with over 300Mb of files, and more than 800 users. Caters for Amigas and other types of computer. Member of Fidonet and Amiganet.

Metnet Triangle
0482 449028 – 24 Hours a day.
An immense BBS which has 10 telephone lines and a vast number of files. Well worth a look.

01-for-Amiga
071 377 1358 – 24 Hours a day
A large BBS which deals with the Amiga only.

The End Zone
0524 752245 – 24 Hours a day
A wide selection of Amiga files, and special interest areas for DTP and many others.

Non-BABT Proved
0268 510495 – 24 Hours a day
A wide selection of files and no subscription fees.

Citizens Advice Bureau
081 644 8714 – 24 Hours a day
Covers other machines, and a wide range of topics

Burning Chrome
0428 727060 – 24 Hours a day
For the serious Amiga user. Very busy. Very useful.

Red Rose
0772 652212 – 24 hours a day
Carries both Fidonet and Amiganet. Very active BBS.

respond with an 'OK'. The modem could respond with 'ERROR' however. In this case, check that all leads are plugged into the correct ports. If you still don't get anything, press and hold down any key. This should cause some lights (marked RD, TX, SD or TX) on the modem to flash. If they don't, there may be a problem with the modem or the cable.

In *Term*, you can change the speed and other settings by selecting 'Serial' from the settings menu. In *Ncomm*, you change it by selecting 'Baud rate' from the 'Com' menu. With Baud Bandit, click on 'MODEM', and click on the Baud rate setting until you get the appropriate speed.

Software from where?

Q **Where do I get Comms programs?**

A Both *Ncomm* and *Term* are available from good PD firms, such as George Thompson Services (0707 391389) or 17 Bit software (0924 366982). *Ncomm* is shareware, and costs $US35 to register. *Term* requires Workbench 2 or higher.

Is it free?

Q **If BBSs are free to call, what am I expected to do in return?**

A BBSs rely on people uploading new software and taking an active part in order to keep the BBS alive. So take the time to upload files as this is how they get distributed.

A BBS of your own

Q **I'm interested in starting a BBS. But I have no idea how to start. Can you help?**

A Starting a BBS requires a lot of time, energy and a few quid. You'll require a telephone line, a modem and your Amiga. Although it is possible to use all of these for other purposes while running a BBS, you`ll probably be better off getting ones just for the BBS. Have a word with a local Sysop, because most of them are willing to help out.

The software touch

Q **What sort of software is available on a BBS?**

A All sorts of Public Domain software, ranging from the latest disk defragmenter to Eric Shwartz's most recent animation. It's like a PD library, but without the charge and the waiting for the postman. Many BBSs have special interest areas (such as DTP or MIDI), where you can often get hold of files not available elsewhere. Up to date versions of programs are also available, and it's often possible to contact the author directly, as many are involved in E-Mail.

How to download

Q **How do I download a file?**

A This varies from BBS to BBS, as each has its own type of menu, and different ways of getting around the board. No matter which BBS you connect to, you'll need to get to the file menu, which can usually be accessed straight from the main menu. Once you're at this menu, choose the option to list the files, or the option to search for a specific file. When you've found the one you want, select the option to download. You'll then be asked what Protocol to use. This determines how the two computers send the data, and how they decide if there's a problem with it.

ZModem is usually the fastest and most reliable, but make sure that you've set your software to use Zmodem (check the 'transfer' menu, 'protocol' item on *Ncomm*). *Term* automatically detects that you're downloading something, but if you're using *Ncomm*, select 'download' from the 'transfer' menu. The file will then be transmitted down the phone line to your Amiga.

Phone peace

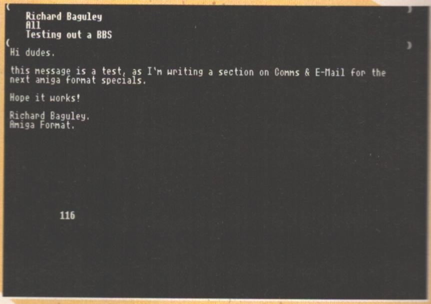
Q **How do I get into Comms without monopolising the phone?**

A If you've only got one telephone line, life can get difficult because when you're on the phone with your modem, nobody else can use it. If somebody else does pick up the phone, they'll get an earful of a hideous screeching noise, and your modem will probably hang up. It makes sense to try to avoid this, so think about setting specific times when you can use the phone. Most BBSs get very busy for a couple of hours after 6PM, so it makes sense to try other times. Why not try after 11 o'clock, or early in the morning?

Virus warnings

Q **What about viruses? Can you catch one from a infected file from a BBS?**

A Yes, this does happen, although the first thing most Sysops do when they receive a file is to check it for viruses. You should also check all disks that you receive from any source with an up to date virus killer program such as *Virus_Checker* (latest version: 6.22) or *VirusZ* (latest version: 2.27). These should be available on most BBSs or from a good PD company. Virus infections, although uncommon, do happen, and a certain amount of caution is advisable. If you've downloaded an infected file, let the Sysop know, and they will withdraw the file.



Writing a message on the message editor built into the Aspects BBS.

Message sending

Q **How do I send messages?**

A There should be an option in the Messages area of most BBSs to enable you to send messages. From here, select the option to write a message. The system will ask you who to address it to, if it's a general point or query, enter 'ALL'. You'll then be asked for a subject. A few words on the nature of your message will help people to decide if they want to read it. The BBS will then put you into an editor, where you type in the message, most have a help screen available. Once you've finished the message the BBS will automatically process it, so the entire Comms-World can read your message!

Money Saving Hints

Good reading guide

Q **Should I read messages when I'm on line to a BBS?**

A **It's not a good idea. As well as increasing your phone bill, you'll be hogging the line when other people may want to get connected. If you're getting seriously involved with E-Mail, consider using an Off Line Reader (OLR) such as Q-Blue or Silver Express, which should be available on most BBSs. These are programs which call the BBS, gather together your messages, and download them to your system. You can then hang up the phone, and read and reply to these messages at your leisure.**

Keep the bill down

Q **How much does it cost to call a BBS? How do I keep my bill down?**

A **The commercial services usually charge a registration fee and an hourly fee. Amateur systems such as the ones listed don't charge, so the only cost is the telephone bill. If you call a board regularly, some may ask for a contribution, or charge an access fee which gives you access to an additional telephone line. There are ways of keeping the telephone bill down: using Mercury instead of BT for long distance calls works out cheaper if you make a lot of them. Also, don't forget that peak and standard rate calls are much more expensive than cheap rate. Call after 6PM or before 8:30 in the morning. To summerise, here are our 10 Top Tips to Good Comms...**

1) **DO write messages off-line.**
2) **DO read messages off-line.**
3) **DO compress files for uploading.**
4) **DO call during off-peak hours.**
5) **DO keep an alarm clock close at hand to help you time your calls.**
6) **DO ask the Sysop for help, don't waste valuable time looking for things.**
7) **DON'T spend hours chatting.**
8) **DON'T download everything in sight!**
9) **DO make use of Public Domain Comms software (it's the cheapest and best).**
10) **DON'T buy the most expensive modem just to get started.**

LET'S GO PUBLIC

PD or not PD? That is the question. Whether t'is nobler to make use of some incredibly useful, fun, impressive, strange, impressively strange software for very little money, or not?

Use the library

Q How do I set up my own PD library?

A In theory all you have to do is collect a few disks, stick an ad in the classified section of a computer mag, and wait for the cash to start rolling in. In reality it's not quite as simple as that.

First up you're going to need premises with enough space to store disks, packaging and stationery. Because you'll need to buy these items in bulk to save money, you'll need space for several bulky boxes, and enough room to set up some sort of filing system for your disks. You will also need a phone and answer-phone, two computers (in case one breaks down) and some means of copying disks. The minimum requirement for this is two floppy disk drives. You may be tempted to invest in a disk duplicating machine but unless you are going to regularly use it for long copying runs (100 or more disks at a time), it's simply not worth it. It's quicker to copy ten or so disks using two floppy drives, rather than a duplicating machine.

A printer and a hard disk or two would also be pretty useful. But aside from the premises and equipment your main outlay will be time. Checking programs for bugs, hunting viruses, copying the disks, sending them out, organising ads, dealing with customer enquiries and keeping on top of your bookkeeping and filing all takes time – lots of it.

A little consideration

Q What do I need to take into consideration?

A The following pointers will prove useful to you in your enterprise:

1) DISKS: When you start your own library you should have about 200 disks, covering a wide range of areas. These must be referenced and catalogued.

2) HARDWARE: Make sure your Amiga is up to the job. If your library fails because your hardware is suspect you've only got yourself to blame.

3) PRICE: Very important this. Refer to the costs box on this page, work out all your overheads and then arrive at a price per disk, after taking into consideration what the other PD libraries are charging.

4) BANKING: Set up a separate account so that you know exactly what your financial position is. If you try to lump it all into your personal account the whole project could end in tears.

Continued on page 80

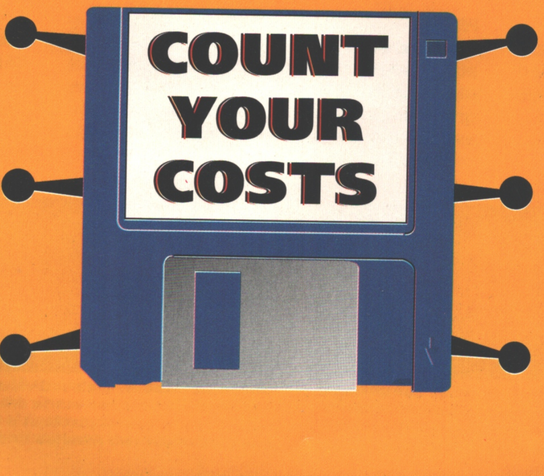
How much does it cost to sell PD?

Although it's impossible to give an overall figure because the cost will depend on the scale of the operation, here's a rough breakdown of the main areas of your outlay

OVERHEADS: These include electricity and telephone bills, wear and tear on equipment, stationery, an allowance for lost or corrupted disks, the cost of buying magazines – that's just the obvious ones. Take them all into account.

CATALOGUES: It's a good idea to send out a catalogue with every order. Keep the punters informed! But you must budget for the initial cost of producing the catalogue.

CREATE AN IMAGE: You'll need a company logo for labels to stick on your disks, and it's also worth getting some headed notepaper and other stationery printed.



ADVERTISING: Let the world know about your library, advertising is the best way to do it. It's not cheap, but you should find that the amount of business you do is proportional to the amount of advertising you take out.

POSTAGE AND PACKING: Make absolutely sure of your costings for padded envelopes and stamps. If you get your budget wrong here, it's bye-bye PD library.

TAX AND ACCOUNTANTS: If your library starts doing well, the tax people will want to get in on the act, and that may mean employing an accountant.

5) THE NAME: Don't try to be too clever, and remember that the name will have to last for as long as the library (hopefully many years), so something that seems remarkably snappy in 1993 might seem completely ridiculous in 1996. Try out the name on plenty of people before you go ahead with it.

6) GET ORGANISED: Customers won't be impressed if they get in touch with you and you can't find any record of their order. So arrange an efficient system for sending out and filing orders. Remember that your financial records could be open to inspection by the tax office and therefore need to be in good shape.

Good library guide

Q **Can you recommend some PD libraries?**

A Certainly, here's a list of the leading Public Domain libraries:

AMOS PD, 1 Penmynydd Road, Penlan, Swansea SA5 7EH.
Amiganuts United, 169 Dale Valley Road, Hollybrook, Southampton.
Anglia PDL, 115 Ranelagh, Felixstowe, Suffolk, IP11 7HU (Tel: 0394 283494).
Blitterchips, Cliffe House, Primrose Street, Keighley BD21 4NN (Tel: 0535 667469).
Crazy Joe's, 145 Effingham Street, Rotherham, South Yorks S65 1BL (Tel: 0709 829286).
Deja Vue, 7 Hollinbrook, Beech Hill, Wigan WN6 7SG (Tel: 0942 495261).
Deltrax PD, 36 Bodelwyddan Avenue, Old Colwyn, Clwyd LL29 9NP (Tel: 0492 515981).
Essex Computer Systems,118 Middle Cockerford, Basildon, Essex SS16 4JA (Tel: 0268 553963).
George Thompson Services,Cucumber Hall Farm, Cucumber Lane, Essenden Herts AL9 6JB (Tel: 0707 664654).
ICPUG, POB 1309, London N3 2UT (Tel: 081-346 0050).
NBS,1 Chain Lane, Newport, Isle Of Wight PO30 5QA (Tel: 0983 529594).
PD Soft, 1 Bryant Avenue, Southend-on-Sea, Essex SS1 2YD (Tel: 0702 466933).
Pentire PD, 10a Hag Hill Lane, Taplow, Maidenhead, Berks SL6 0JH (Tel: 0628 666641).
Riverdene PDL, 30a School Road, Tilehurst, Reading, Berks RG3 5AN (Tel: 0734 452416).

PD is more than useful utils. *Pinball Fantasies* debuted in demo form in the Public Domain.

Sector 16, 160 Hollow Way, Cowley, Oxford (Tel: 0865 774472).
Seventeen Bit, PO Box 97, Wakefield, West Yorks, WF11XX (Tel: 0924 366982)
Software Expressions, Unit 4, 44 Beauley Road, Southville, Bristol BS3 1PY (Tel: 0272 639593).
Startronics, 4 Arnold Drive, Droylsdon, Manchester M35 6RE (Tel: 061 370 9115).
Telescan Computer Services, Handsworth Road, Blackpool FY5 1SB (Tel: 0253 22296).
Valley PD, PO Box 15, Peterlee, Co Durham, SR8 1NZ (Tel: 091 587 1195).
Virus Free PD, 31 Farringdon Road, Swindon, Wiltshire SN1 5AR (Tel: 0793 512321).

Commercials

Q **Do software houses or commercial programmers ever release PD demo versions of games to try to gauge the response?**

A Yes. There have been two recent examples of this. A short 'taster' of *Pinball Fantasies* appeared on at least one BBS and *Lemmings 2* was also given a PD demo outing on the CIX Bulletin Board Service?

Share and share alike

Q **What is Freeware, Shareware and Licenceware?**

A PD programs fall into three categories: Freeware, Shareware and Licenceware. Freeware programs are, as the name suggests, completely free. If a program is Shareware then the idea is that you use it, and if you like it you send the PD library a specified amount of money, called a registration fee. You'll probably find that some functions have been disabled, and you will only get the upgrade when you come up with the cash. Licenceware is a different concept in that the programmer licenses the software to be sold through a specified PD library and receives a royalty from the sale price. The cost of Shareware and Licenceware is much less than a commercial program and the best ones are as good as commercial programs.

Where's PD?

Q **What or where is the Public Domain?**

A The Public Domain is not a place but a term applied to serious software and games, animation, music anddemos on which the programmer(s) has waived his or her copyright.. This means that the the program can be freely copied and circulated without infringing the copyright laws.

Is it free?

Q **Is PD software free?**

A The short answers to this are Yes and, err, No. If you get your PD software from a library you will have to pay a small charge to cover the cost of the disks, postage and administrative costs. If you

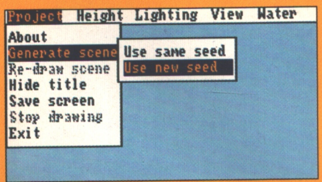
So just what programs are available to

Q **What sort of Public Domains programs are available?**

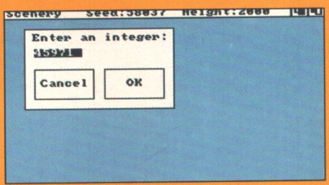
A **For virtually every commercial program available there's a PD equivalent. PD programs can be usefully placed in the following genres.**

PROGRAMMING AND UTILITIES: This is the nuts and bolts of the PD machine. 1000s of authors have created a host of fiendishly useful utilities, and you'll also find that programming is served by various PD assemblers, tutorials, and implementations of full-blown languages.

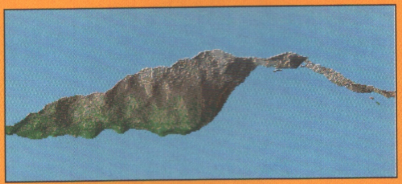
GAMES: Everything from shoot-em-ups to chess via adventures and puzzle games.
DEMOS: One of the most popular genres, demos are there purely for entertainment. Demos are usually a combination of music and graphics, designed to show off the programming skills of their creators and to



***Scenery* is an excellent fractal program, and this version is still widely available in the PD. To get started select the Use New Seed option.**



This will bring up a box containing a number between 1 and 999,999. Different values create different results, here we've chosen 45,971.



Once this number, the seed value, has been chosen the landscape starts drawing automatically one row of pixels at a time. This one took about two minutes to complete.

The completed image. This seed value has produced a harbour and hills. Note the high quality of the image.

get your PD program from a BBS, you don't have to pay anything for it, unless it's a commercial BBS, apart from the cost of the call. You could also include the cost of the modem you need to call up the BBS and the money you spent on the floppy or hard disk on which to store the data. The important point is that if the program you want is Freeware you don't have to pay for the actual program itself. If it's Shareware or Licenceware you do have to pay for the program, but it's much cheaper than the commercial rate. (See the Shareware and Licenceware question – **'Share and share alike'**).

Paying the piper?

Q Seeing as how Freeware programmers and authors don't get paid, why do they do it?

A You old cynic. Were you so indoctrinated by the dogma of market forces that you find it impossible to accept that people might just want to share the fruits of their labours with others without being driven purely by a profit motive? Actually, it does seem a touch peculiar, doesn't it? Look at it this way, some people get a kick out of programming and when they produce something they think is worthwhile, whether it's a game, a utility, an animation or music demo, they want to find out what other people think of it. The best way to do this is to make it available over a BBS or through a Public Domain library. If the program is well-received, the author can always copyright it and try their luck in the commercial market. There's also a chance that a good PD program or demo will get picked up by a development team or software house and the author will make his or her money that way.

Profit motives

Q Do PD libraries make a profit?

A Yes. You only have to check out the PD library ads in ***Amiga Format*** to realise that there is money to be made in PD. Work it out, if PD libraries can afford to take out full-page and half-page ads in the magazine, there must be money in PD, and the libraries must expect to get a financial return from their advertising. If the program is Shareware or Licenceware then the programmer and PD library get paid anyway. So in fact PD libraries, authors and programmers can make a profit. However, reputable PD libraries put the money straight back into the libraries. The money that PD libraries charge is for copying the program on to a disk, not for the program itself. The whole point about PD is that you can get programs for free or for a good deal less than it would cost to buy them through the usual commercial distributors.

Those *Lemmings* get everywhere. A taster for the fantastic *Lemmings 2* even made an appearance on the CIX BBS.

Where art thou?

Q Where can I get PD programs?

A There are two main sources of Public Domain programs, Bulletin Board Services, and PD libraries. To get PD software from a BBS you need to connect up your Amiga to the BBS via a modem and telephone line and download (copy) the program from the BBS computer (the Host computer) to yours (see the section on Comms on page 76). PD libraries operate in a more traditional way. You write to them for a catalogue and then select the software that you want.

Fishy stories...

Q I've heard a lot about Fred Fish and the Fish Disks. Is Mr Fish a real person?

A Yes, Fred is an American who has collated masses of PD and Shareware, and distributes them around the world on his Fish Disks (and also on a Compact Disc compilation). Unfortunately it seems that Fred may be about to call it a day.

He recently E-mailed a message around the world saying that his subscriber list had decreased drastically so he is struggling to fund his worldwide operation. It may already be too late to save the Fish library, but if you want to help Fred keep his library going you can subscribe directly to his service by writing to 1835 E Belmont Drive, Temple, AZ 85284, USA. Or calling Tel:0101-602 491 0048.

Alcohol advice

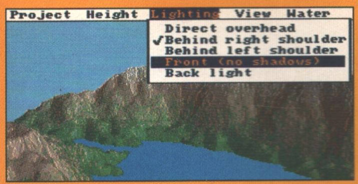
Q I've heard the terms Beerware, Whiskyware, Giftware and Charityware used in relation to the Public Domain. What do they mean?

Continued on page 82

you in the Public Domain? Find out here...

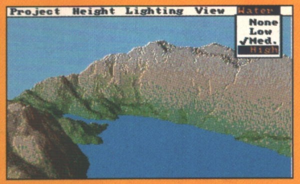
inspire you to emulate those skills with your Amiga.
BUSINESS: Everything from word processors to spreadsheets, databases and DTP programs can be found in the Public Domain.
HOME AND EDUCATIONAL: This covers everything from children's spelling and maths games and programs to touch-typing tutorials, as well as those programs such as pools-predictors, cookery databases, and wordsearch generators, that don't fit in any of the other genres.
FRACTALS: There are scores of fractal programs in the Public Domain including cloud generators and Mandelbrot sets. The fractal generator program (called *Scenery)* pictured below left is an outstanding fractal program available in the Public Domain.

It is now a commercial program, but early PD versions, such as the one we used here, are still readily available.



You can now choose different options to achieve various effects. Here we are changing the lighting of the image from 'Behind Right Shoulder' to 'Front'.

Here's the image with lighting from the front. As you can see, changing the angle of lighting creates an entirely different effect from the original.



Another option enables you to change the height of the water. You could also change the height of the mountain.

Changing the water level creates an entirely different image. You can save this as an IFF and load it into almost any art program.

A It means that the programmer enjoys drinking beer or whisky or receiving gifts.

The idea is that if you are impressed by their work you buy them drinks or send them gifts rather than actually shelling out any money, as you would with Shareware.

Charityware is a wonderful system that shows off the Amiga community at its best. The programmer doesn't want any money, but asks the user to make a donation to a specified charity.

Shared money

Q Do programmers make a lot money from Shareware?

A Most Shareware programmers and authors don't make much money, usually just enough to cover their expenses. But there are some exceptions, perhaps the best-known is Jonathan Potter. Who created some excellent virus killer and utilities.

Coverdisk queries

Q Are *Amiga Format* Coverdisks PD?

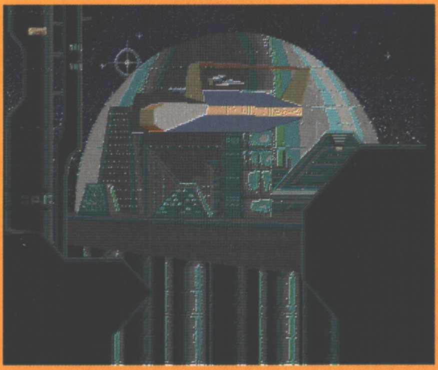
A No they are not Public Domain. Because we make agreements with the commercial software houses, the regular ***Amiga Format*** Coverdisks are subject to the same copyright laws that apply to all computer programs.

We name the best in PD and Shareware

Q What are the best PD programs?

A Impossible to answer this one because it depends on your tastes, what you want from the program and so on.

However, there are many programs that are particularly well-thought of by the ***Amiga Format*** team, so here's a completely subjective list of some of the PD programs we particularly like.



Outstanding graphics such as these earn the demo *Odyssey* a place in our PD Hall of Fame.

GAMES

1. *Llamatron*: Jeff Minter's classic and bizarre shoot-em-up starring a death-spitting llama.

2. *Doody*: excellent animation in this platform game featuring two bouncing blobby things.

One of our favourite PD games, the platformer *Doody* boasts bags of bouncy blobby things

3. *Hypnotic Land*: despite, or perhaps because of, its simple concept of putting coloured balls into the correct cup as they roll off a conveyor belt, this is an absorbing game.

4. *Lemmingoids*: a cross between two classic games, *Lemmings* and *Asteroids*, in which you blow up the flying furry rodents with an umbrella.

5. *Revenge Of the Mutant Camels*: it's that man Minter again, with another brilliantly off the wall shoot-em-up in which camels and goats, blast it out with telephone boxes.

DEMOS

1. *Anti Lemmin' Demo*: outstanding cartoon-style animation from Amiga demo master Eric Schwartz in which the furry rodents do battle with a heavily-armed jet fighter. Schwartz is one of the best Amiga animation artists around and his demos could fill our top five. They are widely available in the Public Domain, and all are worth checking out.

2. *Jesus On Es*: impressive rave music and graphics demo from the LSD team.

3. *Odyssey*: inter-galactic tale of the fight between good and evil. Brilliant graphics and music.

4. *Robin Reliant Turbo Challenge*: witty piece of animation based on the *Turbo Challenge 2* game, but starring a Robin Reliant instead of a Lotus.

5. *Manic Raves*: highly impressive combination of rave music and graphics. The music is outstanding in its own right.

HOME & EDUCATION

1. *Storyland 2*: children's adventure game that, despite an anti-vivisection theme, is a lot of fun.

***Storyland* takes poll position in our PD education chart. We particularly like the purple jelly.**

2. *Big Top Fun*: children's word game set in a circus.

3. *Play It Safe*: a fun way of teaching children about domestic dangers such as cutting through electric wires with scissors.

4. *Golf Score Analyser 1.82*: keep track of your golf scores, work out your averages, and print graphs showing the improvement in your performance. Essential if you want to know exactly how bad you are at golf.

5. *Coromandel Voyage*: based on historical records this program charts the voyage of the ship Coromandel taking settlers from Portsmouth to Sydney. Colourful and informative.

BUSINESS

1. *TextPlus 3.0*: exceptionally good word processing program, that easily matches many of its commercial rivals at a fraction of the price.

2. *AMOS Database 3.01*: the best Public Domain database program available, in our humble opinion.

3. *Uedit*: easy to use text editor.

4. *Transcript 1*: fast to use word processor program.

5. *TapeCover*: one for the musically-minded. TapeCover is design package specifically written with cassette tape covers in mind.

PROGGING & UTILITIES

1. *NComm 2.0*: impressive Comms package with stacks of features, including transfer bars to show you how quickly a program is downloading.

2. *Super C*: a program packed with useful CLI utilities and tools that enable you to perform functions such as displaying IFF images, checking for viruses and speeding up the mouse pointer.

3. *MessySid*: useful program that enables you to transfer files to and from Amiga and PC disks.

4. *Digital Illusions*: excellent image processor from Tonny Espeset, that was given away on the Coverdisk of ***Amiga Format*** issue 45.

5. *Sid*: a utility program from Timm Martin that enables you to carry out both simple and complex disk and file operations with ease. *Sid 1.06* and the rewritten version *Sid 2.0* are both excellent.

PUBLISHING PLEASURES

Communicating your ideas to the rest of the world in a way that appeals to more people than it puts off is not easy. But you can make it easier by following these DTP Q&As...

Text adventures

Q How do I get text into my DTP program?

A There are two ways of doing this, both are simple. The first method is to type it straight into your DTP program.

Although this might sound like the logical way of dealing with the problem, you will be surprised how long it takes to whack text into a package such as *Professional Page* or *PageStream 2.2*. This is because most good DTP programs were set up to deal with text as a page element rather than as the vehicle for the written word.

This leaves you with method two which is to use a good basic word processor - we heartilly recommend *Protext 5.5* (£80 from Arnor 0733 68909) as a basic, quick word processor. Using this second method, you will need to save the text file in ASCII (American Standard Code for Information Interchange) or RTF (Rich Text Format) form so that you can transfer it from the word processor to the desktop publishing program. If you have formatted it with bolds, italics, underlines and so on, and want to retain this, then you'll need to use RTF format in order to retain these.

Simply the best

Q What's the best Amiga DTP package?

A At the moment this is *Professional Page 4* from Gold Disk (£199.95rrp or £117 via Silica in the UK - call 081-309 1111). However at the recent New York World of Commodore, (and more than likely at the **Amiga Format** *Live Show*) we have seen previews of *PageStream 3* that looked as if the new program would offer stiff competition to the existing DTP offerings.

There is also *PageSetter 2* (again from Gold Disk, again via Silica in the UK). This comes in at a reasonable £99.95 – although you can get it cheaper by shopping around – and is one of the most reasonable entry-level DTP programs (if you were one of the readers of **Amiga Format**'s classic issue 34, then you would have got *PageSetter* on the Coverdisk and can now upgrade for £50), if you missed the issue, sorry it's sold out.

It must be said that *PageSetter* was the original DTP program for the Amiga and so the pre-version 2 editions really do show their age. Version 2 however, has been given a re-write and will suffice as a beginner's intro to the fine art of DTP'ing.

Text adventures

Q Why should I use an Amiga to desktop publish when everyone is raving about these low-cost Macintoshes which are supposed to be the bee's knees when it comes to DTP?

A Well, try this little comparison of DTP power and cost effectiveness...

	Amiga 4000-30	Mac LCIII
PROCESSOR:	68030#	68030#
DATA-BUS:	32-bit	32-bit
RAM:	4Mb	4Mb
MAX RAM:	64Mb	36Mb
HARD DISK:	80Mb	40Mb
MULTITASKING:	Yes	No
PRICE:	£999	£1,639
MONITOR:	£310*	£350†
SOFTWARE:	£117§	£695•
TOTAL COST:	£1,426	£2,684
PRICE DIFFERENCE:		£1,258

#25MHz
*15-inch Multisynch
§*ProPage 4*
†13"Colour
•*Quark XPress*

Makes you think doesn't it. And we feel strongly that the arrival of the A4000 and the A4000-30 into the market will boost the Amiga so a huge extent.

Read our two page practical guide to DTP and then skip to page 84 for the conclusion of this piece...

THAT DTP LINGO LIFTED!

Q There seems to be nearly as much jargon in DTP'ing as there is in programming. Could you explain the most commonly used bits for me?

A No problem. Lingo and jargon can be horrifically confusing at the best of times. Read on:

Body Text: (also Body Copy) the main bulk of text in an article.

By-line: tells you who the peice was 'by'!

Call-out: a section of text printed in a larger point size in order to catch the eye of a passing reader.

Crosshead: (also x-head) a line inserted into body text. Firstly to draw the eye to a section break. Secondly to break up long chunks of body text.

DPS: Double page spread.

Drop-Cap: A large, single letter used at the start of an article or of a section. This is merely for looks and as another device to catch the eye of the browsing reader.

Folio: the page number – and in some cases the issue number or date as well.

Gutter: the gap between columns.

Measure: the width of a column. This was measured in *ems* (see Word Processors) but is now more commonly calibrated in mm.

Orphan: a single line, usually at the top of a column just before a paragraph break.

POINT: a measurement of 1/72nd of an inch used to describe the size of text and of leading and tracking on a page.

Page Furniture: an all-encompassing term for items such as call-outs, captions, straplines and crossheads.

Rivers: the winding spaces on a page between words. Too many (or too wide) rivers make a page unpleasant to look at. An unpleasant page won't stop a reader and so won't be read.

Run Around: (also Text Outset) the gap between a picture box and the flow of text. This is usually measured in points.

Strap: (also Strapline) a piece of text inserted between the headline and the body copy. Smaller than the heading but bigger than the body copy and usually in a different font to both of these. It contains the by-line and a brief description of the piece.

Widow: a single word on a line. This makes a page ugly (see Rivers).

THE BAD

These two pages provide two practical examples for you to use in order to get the most from your Amiga-based desktop publishing endeavours. Packed with publishing hints'n'tips, it should enable you to create some eye-catching pages of your own…

Q I want to start my own fanzine-cum-magazine. I've got an A1200 with a 120Mb hard disk, and *ProPage*. You lot do this kind of thing the whole time, so come on, I'm one of your loyal readers, give the benefit of your expertise.

A Certainly, we have no secrets. The point about good design is that it is, for the most part, clean and simple.

The details such as individual illustrations might be complicated, but overall there are a few rules that are good to follow. We have pooled our collective knowledge and have come up with the following tips and hints.

Set up your document

Let's presume the fanzine is going to be A4 size, and you're going to have three columns of text. The reason for choosing three columns is that if the text reads right across the page (one column) it is difficult to read because the eye must travel the width of the page before moving to the next line.

If you have four columns,the text can appear cramped and will, again, be difficult to read. A two column grid is a possibility, but it's easier to get to grips with three columns before experimenting with two. However, you don't have to restrict yourself to a set number of columns.

Face up to it

You can flow text around pictures or have boxes of text across different measures. The important thing to remember is not to stretch the text across to wide a measure, or cram it into a narrow measure.

Typefaces and fonts: Choosing an attractive, easy-to-read typeface for the body text is very important. If you go for Times or Palatino for the main text you won't go far wrong. Experiment with different type sizes and different leadings until you come up with something that you are happy with. You should be looking at the type size being somewhere between 8.5 point on a 9 point leading and 10 point on an 11 point leading.

If you want crossheads, choose a contrasting type face at about 14 or 18 point. Good headline typefaces include Futura and Frutiger Ultra.

Again it's very much a question of experimenting with the typefaces at your disposal, until you come up with a combination you find pleasing.

Captions should be either a different typeface to the body text, or a bold font of the body text.

You should also have at least one alternative body typeface, probably a bold one such as Helvetica Bold, so you can break up the page by running some stories in bold. If the page is all set in one typeface it will look grey and drab. Bear in mind that you can italicise or embolden words, sentences or paragraphs within the text to draw attention to them, and break up a grey slab of text, and remember that having plenty of paragraphs also helps break up the page. Don't get carried away with typefaces and fonts. Too many different typefaces and fonts on a page will make it look messy.

Scanning: When you choose a picture to scan, make sure that the original is of high quality. You can scan colour pictures with a mono scanner and get good results, but this very much depends on the contrast of the colours. Deciding what resolution to scan at is best done by experimenting.

Picture usage: Using pictures effectively is vital to the impact of the fanzine. Take into account the focal point of the picture when you are deciding how to use it. If the part you want is in the middle, you can just scan that part of the picture or crop it around the focal point after you've scanned it. Don't be afraid to use a pictures big, don't use them too small, and spread them around to break up the text.

THE GOOD

GOOD LAYOUT'R'THUS

Good Text

A page that attempts to make up for the mistakes of the previous attempt using roughly the same elements. Your host once again is Tim Smith.

D ... for drop caps if you ...sn't take much re... or n... ...ght – you can always ... : 'If something goes wrong ... 'Should something going ...ith th...

R... also ... the Bristol Rovers don't ... ou'll all look rather silly as w...

I bet you think that I'm going to drop in a cross-head now, don't you.

Well I'm not, and the reason I'm not is that you don't need cross-heads every three paragraphs. They should be used to break up the text at strategic points. This makes the reader's life easier in both reading, and information absorption which, after all, is the *raison d'ˆetre* of writing a piece in the first place.

But around now might be a nice place for a cross-head, what do you think?

It's a good idea

It's very much a matter of taste really, and you could say that this cross-head is far too close to the picture below, but personally I think a huge column of text is far too hard on the eye and on the brain, and who can be bothered to plough through acres and acres of text when all you really want to do is to have an enjoyable read?

Then we come on to the subject of call-outs such as the one to the righ... ...ence. The function of call-c... draw the browsing reader into the piece by highlighting one or two particularly interesting items from the text.

The one thing you do... want to do with a call-ou... cheat. Reader's are not ... are also sensible enough to know when they are being conned by hype and flannel, so the occasional re-write (as long as it's shown) will not upset too many people. A wholly out of context chunk however, is wrong.

"...y... know ...n they are ...ng conned by ...pe and flannel"

...a nice looking pic', it's been created in De... the spiffy new program from EA. Huzza!

Also remember that cal-outs shouldn't take over the entire page or spread. Keep them smart and keep them clean.

Talking of smart and clean, captions should also be laid back and informative. There is also the good rule-of-thumb to follow that every major picture used on a page should be accompanied by a caption.

Why's that then?

This is because you don't want to leave the reader guesssing. Another good rule to follow with captions is that they should use some new information rather than simply repeating a section from the main body of text. In this way you are able to convey even more to the reader, and I can assure you that an informed reader is a happy reader.

You won't get anywhere by being lazy or slapdash with the text or the design. They should both work together, complimenting each other rather than fighting with each other in order to state which is the most impressive. So remember the eventual design when you are writing your peice on the Amiga. And when you're using your Amiga to layout the pages, remember all the hard work that you (or the other writers) put into the text in the first place. Simple guides for good results.

~This really, really strange picture is really, really strange don't you think. I mean, it's weird man!!!

Really Great Games

Box-outs are great little devices for emphasising points or even for introducing some tangental information that is related to the subject in hand.

But be careful... and over-the-top box-out that uses too many colours, too much text, and too many 'wacky' devices will only serve to put the reader off the entire ...ece. And by-so-doing you have prob... ...the reader off the entire book ... ...ir fanzine or letter.

Believe me, once you've pu... ...der, you've more than likely ... good and all. After-all, there are ... things for people to use their valu... time mulling over.

However, don't be too frightene... using some eye-catching colours wit... boxes. Of course, if you're working in black and white, as most of you will be, you can also make great use of greys and shades of

...Addar... ...y is a great game, we think. ... Ha... ...e fun with your pages, ...o translates to your readers ... up on it and enjoy themse... ...more. Then they'll give you a good rating for all of your hard work. Face it, you really do deserve... 99%

These two pages were created as examples of two possible layouts for the same subject matter. Please make sure to read them as well as looking at them as design-guides because the text gives a few useful tips on writing styles for your documents. Remember that, armed with an Amiga, the correct software, a digitiser and/or scanner and some imagination, you could turn your ideas into something rather more than a hobby. And remember also that the next *Amiga Format Special* (*The Good Hardware Guide*) will give tips on the best hardware for your desktop publishing needs.

My name is prints

Q How do I print my work?

A You have two options available to you. You can either use a standard dot-matrix, bubblejet, inkjet or laser printer and then photocopy the results, and staple the pages together if you've only got a limited circulation.

If your circulation is too large to make this a viable proposition, then you can send the file to a Linotronic bureau for output. It's then up to you to get prices from various companies to print the fanzine. These prices will probably vary depending on specifications such as the quality of paper you want to use for the cover (if applicable) and on the inside pages, and the number of colours you want.

But even if the specifications are the same, you will still find that prices vary by a surprising amount so it really is worth shopping around and getting a number of quotes from different printers for the same specifications.

10 TOP TIPS TO DTP SUCCESS

1 DON'T make the reader's eye travel from the bottom of one column, through a box-out, a call-out and a picture. This is too much effort, you've probably just lost a reader.

2 DON'T use too many colours in a headline. We know it can be tempting to play around with colours, but resist. A headline is merely supposed to catch your eye, not incinerate it.

3 DON'T use 'i' or sans-seriffed 'l' as your Drop-Capital letter because they have a tendency to disppear as letters.

4 DON'T let page furniture take over from the main text. This 'Call-Out' ("AND WHEN THE...") is too colourful, all in uppercase, justified with a drop-shadow.

5 DON'T scale graphics too much. This picture is horribly warped so they give the reader the wrong idea about the image and the meaning. Worse still, the picture at the top right doesn't even have a caption, what's it supposed to be?

6 DO keep the aspect ratio of your images within 10 per cent. The aspect ratio is the relationship between the vertical and horizontal of the graphic.

7 DO make sure that the page furniture (Call-outs, boxes etc) works with the main text and not against it. Generally the fewer colours you use the better the end result will be.

8 DO keep to a maximum of four typefaces (in fact four is over the top because you can embolden, condense and italicise with the Amiga). Here we have used four – one for the body copy, one for the headline, one for the captions, strap, call-outs and one for the box-out text.

9 DO give every picture a caption (don't make the reader guess) and make sure that the captions say something new and relevant to the reader.

10 DO keep it clear and clean. Make the words work with the pictures, not against them. Remember a clean lay-out is a good layout.

As a final thought on this matter, try thinking internationally, did you realise that the premier DTP tool in Germany is… the Amiga? So you don't always have to believe the hype.

Facing the facts

Q What's the difference between a serifed and a sans-serifed typeface? Why should there be a difference, and what does it matter to me?

A The difference is in the physical look of the letter-shapes. The graphic below should explain this clearly, but just in case you're still confused; a serif is a short line (sometimes even a blob in modernist font design) at the end of a letter stroke. The serif word is said to derive from the Dutch word *Schreef* which means stroke. The word *Sans* means without in French.

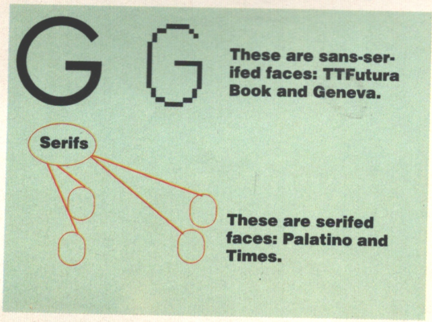
The difference in useage is of more practical use to you, so here are some rough guidelines:

1) Serifed faces look stylish and make large chunks of text (such as main body copy) easier on the eye – hence easier to read.

2) Serifed faces LOOK AWFUL IN ALL UPPER CASE. This is mainly because the serifs abutt each other and make the words difficult to read.

3) Sans serifed faces look great for small chunks of text such as cross-heads, captions and headings.

4) Sans serifed faces do not look good in large chunks. The reason for this is that there is too much uniformity in front of the eye, which is boring.



Now you can tell at a glance what the difference is between serifed and sans-serifed fonts.

A rough outline

Q What is the difference between bitmap and outline fonts?

A The difference is in the way in which they are displayed on screen and then reproduced via your printer. Basically, a Bitmapped font is created from Picture Elements (Pixels). It will be a great deal more rigid in its structure, meaning that you will not be able to scale it up too much without ending up with 'jaggies' (jagged lines where they should be smooth. This illustration should give you a rough idea of what jaggies look like – far from pleasant, and very computery looking.

Outline fonts on the other hand, do not rely on picture elements (Pixels) to form them. They are created from a series of mathematical calculations carried out by your Amiga. This means that when you want to scale an Outline font, it won't go horribly bitmapped on you. This also gives you the ability to use programs such as PageStream with its built-in text manipulation facilities: skewing, bending and perspectives. You would not be able to do this with a program that used only bitmapped type. The most common outline fonts for the Amiga are the high quality Agfa Compugraphic fonts.

Formats of fun

Q Could you please explain what TIFF, PCX, IFF, GIFF, BMP and EPS are all about?

A This is simpler than it might sound at first. These are all graphics file formats. Rather, they are the suffixes of graphics files showing the file-types. A table of the suffixes and there meanings follows for your edification:

Suffix	Meaning
.TIFF	Tagged Interchange File Format
.IFF	Interchange File Format
.GIFF	Graphics Interchange File Format
.EPS	Encapsulated PostScript
.PCX	Personal Computer eXchange
.PICT	PICTure format
.LBM	Interleaved Bitmap
.JPEG	Joint Photographic Experts Group
.BMP	Windows BitMap

Because we are working in a world where different hardware and software makers are all trying to gain the high-ground, different programs and computers produce different formats. This means that you end up with different file-names and, more importantly, different file structures that need to be converted if you want to use them on your Amiga. Don't be fooled into thinking that you can open any file and use every illustration that comes your way. So please make sure to check first otherwise your entire project could come to a halt before it even gets off the ground. Also, if you are thinking of using a large number of different graphics file formats in your desktop publishing, you would be well advised to invest in a copy of *Art Department Professional* (*ADPro* to its friends) and you would also be advised to turn to page 68 for our section on image processing.

Don't be fooled into thinking that you can use any kind of graphics file in your DTP. Make sure to check on compatibility before importing files.

Graphic explanation?

Q How can I get hold of some decent fonts and some half-decent graphics?

A There are two routes to follow here. Either you can go for the Public Domain variety by logging on to a BBS (see the Public Domain section starting on page 77 for our list of recommended BBSs) or using the adverts for PD companies in this magazine and ***Amiga Format***.

The other route is to go the commericial way. We recommend a company called EM Compugraphics (8 Edith Rd, Clacton-on-Sea, Essex CO15 1JU. 0255 431389). This company can not only sell you font after font, it also has file after file of clip-art to use.

Frankly, if you're just starting out, you're probably better off using clip-art rather than full-blown, digitised graphics. The reasons for this are many-fold, but two of the strongest ones are that (a) digitising pictures means buying either a digitiser or a scanner – and both of these will cost you money running into £100 plus (with software at £100 too, we are talking serious money for the beginner).

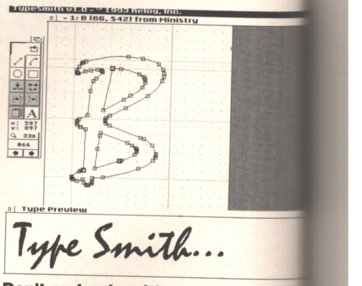
The other reason is that, unless you do the digitising yourself, you can never be sure of the quality of the finished products; after all, if you are creating your own publications, you want to have as much control as possible.

A font of my own

Q Is there any way in which I can create my own fonts?

A Yes there is. ***Amiga Format*** reviewed a program called *TypeSmith* (***AF*** 46, 88 per cent, £129.95 from Soft Logik via Silica on 081-309 1111) that does this job.

Not only that, but it also makes use of Outline fonts rather than the outdated and cludgy bitmapped versions. Make your own faces!

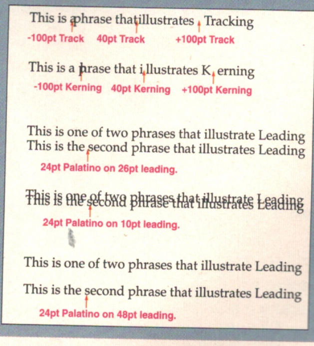


Don't make do with any old font, you can design your own with *TypeSmith*.

LEADING TO THE TRACK

Q What do leading, kerning and tracking mean?

A They are not as complex as they sound, in fact kerning and leading are both very outdated terms anyway, they hark back to the days of hot metal publishing before the days of the Amiga and the reasonably low-cost software you can lay your hands on now. Basically, kerning means letter spacing. Tracking means word spacing. And leading means the space between lines. All of these measurements are usually given in points. We at *Amiga Format* actually feel that these should be dropped in favour of letter space, word space, and line space – into the 20th Century!



USING YOUR UTILITIES

They don't sound too interesting, but utilities are ever so useful for setting up your Amiga to make it fast and easy to use. Here we answer your utilities questions...

ProPage time

Q **Why is it when I copy new Compugraphic outline fonts to *ProPage*'s `CGFonts:` directory, *ProPage* still doesn't recognise them?**

A In order for *ProPage* to recognise any additional fonts that you place in your GCFonts: directory, you need to run the *CG Update* program. This tells *ProPage* to re-read its list of fonts. In many ways, the *CG Update* program fulfils the same function as the Workbench *FixFonts* utility.

Own outlines

Q **I already own Gold Disk's *Font Manager* which I use to convert Adobe Type-1 fonts to Compugraphic format. I also want to edit and create my own outline fonts. Is there a font editor that can load and save in Compugraphic format?**

A Soft-Logic recently released its *TypeSmith* font editor which is specifically designed to handle outline fonts in a variety of different formats including Soft-Logic's own PageStream format, Adobe Type -1 and Compugraphic. It also acts as a font conversion tool. Contact Silica on 081 309 1111.

Opus opinion

Q **I have some utilities that I'd like to attach to buttons using *Directory Opus 4*. I know how to use *Opus*' built -in functions, but I can't get it to run programs such as *DPaint*. What other type of actions can I assign?**

A *Directory Opus* (version 4.0) offers considerably more scope for customising buttons. Unlike the previous version that could only handle AmigaDOS commands and *Opus*' built-in functions, version 4 enables you to select any one of five different button types. To select one of these options, simply load the *Directory Opus Configure* program (or click in the C gadget in *Opus*), enter the Buttons menu, click on the button to edit then select one of the following.

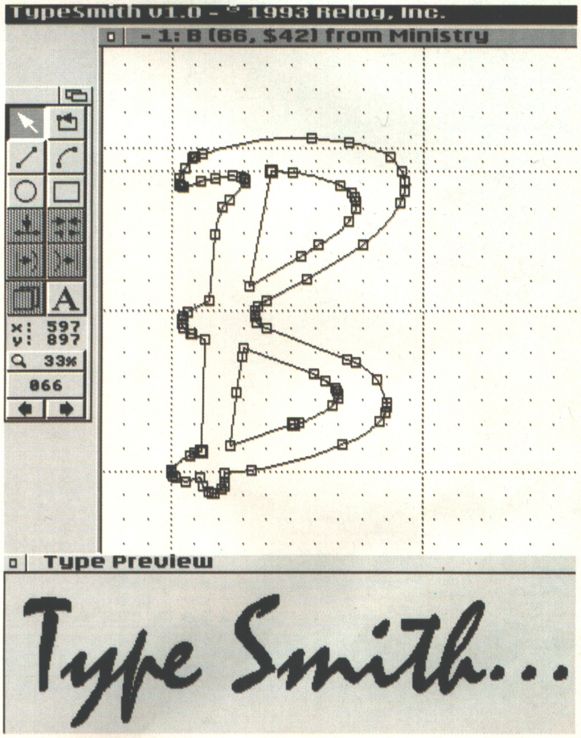
COMMAND – The Command option is used to run *Directory Opus*' built-in functions. For example, entering Command Format would assign the *Opus* disk formatter to a button. Although many of the *Opus* functions are also available as AmigaDOS commands, always use the *Opus* functions instead of the AmigaDOS equivalents to keep up operational speed.

AMIGADOS – The AmigaDOS option enables you to assign a Shell command to a button. Note that although this function will run most programs, you're better off using the Workbench option if you do not need a Shell window. By using the A'DOS option, *Opus* will create an output window.

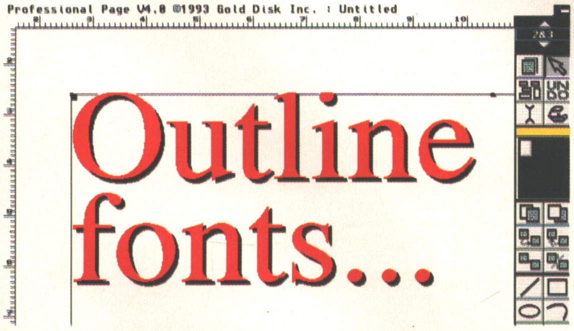
WORKBENCH – This is the most regularly used option (after Command). It enables you to run any program that would previously have been run from the Workbench from within *Directory Opus*. You can therefore use it to launch programs such as *DPaint* or your favourite word processor.

BATCH – The Batch option is very similar to the AmigaDOS option, but instead of running individual Shell commands, it attaches an AmigaDOS script-file to a button, enabling you to perform quite complex operations with just a single mouse click.

AREXX – For Workbench 2.0 owners; the *Opus*- ARexx option enables you to attach an ARexx script to any button. The ARexx *RexxMast* server program must be run before you run any ARexx script.



Edit and even create your own outline fonts for use with a host of programs with Soft Logic's new *TypeSmith* outline font editor.



Using *ProPage* it's not the most difficult task learning how to get the most out of your Amiga fonts – and the benefits abound.

More of an Opus

Q **I have modified my hard disk's startup-sequence so *Opus* is automatically loaded at boot-up. But it starts up with the *Opus* screen active, can I tell *Opus* to run in the background?**

A There certainly is. All you have to do is to add the '-i' option (iconify) to the line that launches *Opus* in your Startup-Sequence. This instructs *Opus* to always switch to an iconified display whenever it is first loaded. If you've got version 4.0 of *Opus* (the latest release), you can even control the format of the *Opus* display when it is in this 'shrunk' state, choose what information is displayed in the *Opus* iconify window or switch off the window altogether (a handy option if you're running *Commodities Exchange* under Workbench 2.0).

For this answer and more turn to page 86

Back To Font

Q Having recently treated myself to a copy of PageSetter 3, I'd like to add some extra outline fonts. A PC-owning friend gave me some Type-1 fonts that he claims are outline fonts. Can these be used with PageSetter 3? If so, how do I go about adding them to PageSetter?

A *PageSetter 3* (and *Professional Page*) are compatible with Adobe Type 1 fonts, but not directly. In order to use them with either program, you will have to convert them to Gold Disk's own AGFA Compugraphic format using the Font Manager utility bundled with both of the packages. Note that two files are required for each Type 1 font – the Font data file and a second .AFM file.

This .AFM file contains all of the kerning information that is necessary to enable both *PageSetter* and *ProPage* to generate correctly spaced characters. Here's a complete rundown of all of Font Manager's various options.

1. CONVERT – As its name suggests, clicking on the Convert gadget sets the font conversion process in action. In order for this to work, you must first select an Adobe Type-1 font to convert. During the conversion process, *Font Manager* prompts you whether you would like the Downloadable PostScript font file written to your CGFonts:PS drawer. Unless you use a postscript printer, click on No.

2. PREVIEW
– If you don't know what a given Type-1 font looks like, then click on the Preview gadget and *Font Manager* will read the font binary file and generate a rough preview of the font in a separate window. Click on the window's close gadget to continue.

3. ABORT
– If time is short and you suddenly find that you can no longer wait for *Font Manager* to convert a font (a very time consuming task, to say the least), click on the Abort gadget to halt the conversion process.

4. INFO
– The Info gadget doesn't actually do a a great deal. Its sole role in life is to remind you how to use *Font Manager*.

5. ICONIFY
– Clicking on the Iconify gadget removes *Font Manager*'s window so that you can use the Workbench while *Font Manager* is still doing its stuff. To back into *Font Manager*, simply double click on the *Font Manager* AppIcon.

6. LOADER
– The Loader gadget is a Workbench 2.0 'Rollo' gadget that, when clicked, gives you a list of the available loader modules. At present, Font Manager offers just a single loader (Adobe Type-1), but other loaders may be released at a later date that will enable *Font Manager* to handle more font formats.

7. SAVER
– The Saver gadget tells *Font Manager* the format in which fonts are to be output. Currently, just two savers are on offer – standard Compugraphic outline fonts and floating point Compugraphic fonts.

If you own an accelerated Amiga fitted with a maths co-processor (and/or FPU), then use the latter option otherwise stick to standard Compugraphic format.

8. READ PROGRESS
– The Read progress indicator displays how much further *Font Manager* has to go before the Type-1 font can be saved off to disk.

9. WRITE PROGRESS
– The write progress indicator displays the amount of Compugraphic data that is still to be written to disk.

Sample playing

Q I have a disk containing a whole selection of sampled instruments. I attempted to play these samples using *Directory Opus* but I have found that only a small number of the samples will play. Sometimes *Opus* just displays a hex listing of the sample. What is going on?

A Some of the samples you've attempted to play are not in IFF 8SVX format. My guess is that the samples you've tried to load are probably from a *Sound Tracker* clone. Most of these utilities don't need samples to be in IFF format, so *Sound Tracker* users generally store samples in what is known as RAW format which is basically IFF format minus the IFF headers. I'm afraid the only way to play such samples within *Opus* is to load them into a sample editor and then save them in IFF 8SVX format.

Disk display

Q *Directory Opus* has an option that enables me to generate a directory structure display of any disk. How do I access it?

A You can generate a directory structure display from any level in a disk simply by clicking on the A gadget with the right mouse button. All this will take time because *Opus* has to locate every file and directory.

GBRoute query

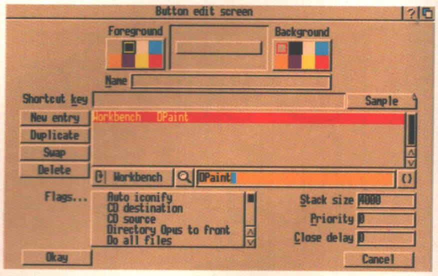
Q Is there any way to reverse the maps printed by *GBRoute*? Because the background is printed in black, I am going through printer ribbons at an incredible rate!

A You can do this from within your Workbench *PrinterGFX Preferences* program. Just load it up, change the Image gadget from positive to negative, save these settings and then go back into *GBRoute*. When you now print, the background will be printed in white.

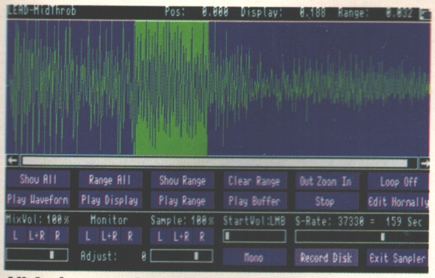
IFF file fears

Q All this talk of IFF formats is confusing me. Surely the whole point of IFF is that there is just a single file format. Why then, are there so many different types of IFF? Can you tell me what different types of IFF format are in use.

A IFF doesn't refer to the format used to store a single form of data (pictures, for example), but is a generic term that defines a technique for storing data using a certain structure. As a result, there are several quite different formats of IFF designed to



***Directory Opus* enables you to assign any one of five different event types to a button.**



All Amiga samplers save in an IFF format called 8SVX. So now there's no need to be confused.

handle different types of data. such as sound sample or paint programs. Although the various IFF formats are not compatible, their structure is very similar indeed. Anyway, here's a quick rundown of the more common IFF formats used on the Amiga.

ILBM – The most common form of IFF is the ILBM file which is used to hold static colour images. Originally designed to hold images with no more than 4096 colours, IFF ILBM has since been extended to cover both the new AGA chip set and even full 24-bit files. ILBM files are compatible with just about any Amiga paint program including *Deluxe Paint*.

8SVX – Although you may not of heard of 8SVX format, you can bet that you've got some 8SVX files hanging around somewhere. 8SVX is the IFF format used to handle 8-bit Amiga samples produced by most Amiga sound samplers. Not all samplers save in 8SVX format. Because of the popularity of sound trackers, many samplers save in its RAW format too.

SMUS – Although rather old , SMUS is still the accepted format for musical scores that use internal Amiga samples as their instruments. Although *Sound Tracker* MOD format is starting to take over from SMUS, many multimedia authoring products still expect scores in SMUS. Packages that write scores in SMUS include *Deluxe Music* and *Sonix*.

ANIM – Originally developed by Aegis, ANIM is used to store animations and has been updated regularly The latest version supports multiple palettes and faster playback speeds.

DR2D – DR2D is an Aegis format that, although accepted as a standard, is hardly used these days. DR2D is used to store structured drawings and was originally devised for use with the Aegis *Draw* package. CLIP format is now more popular.

CLIP – Devised by Gold Disk for its *Professional Draw* structured drawing program, CLIP format is now the industry standard format for the storage of full colour structured clip art.

My home town

Q How do I modify the map data in *GB Route Plus Edit*,so my home town is always shown on -screen regardless of the magnification mode?

A *GB Route* assigns importance to towns and cities using a level number between 0 and 5, with 0 denoting a very important place and 5 denoting a real flea pit that should be avoided at all costs.

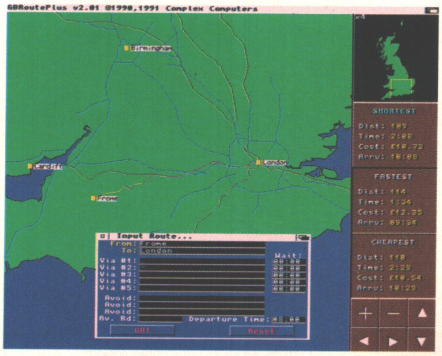
To change the level of a particular place, load up *GB Route Plus Edit*, click on the Mod gadget and enter the name of the place you would like to modify. When you press [RETURN], the map display should change to show the location you have entered along with any towns, cities and junctions around it. Along with the Ordnance Survey reference number and X and Y positions, you should see a field labelled Level. Simply edit this to read 0 and then click on the OK gadget. When you finally save your data file and reload *GB Route Plus*, you should find that your home town is displayed regardless of the map magnification setting.

Wrong route

Q I use *GB Route Plus 2* extensively when planning journeys around the country, but because I don't like driving on motorways, I have to ignore some of the routes that it suggests and plan my journeys manually. Is there any way of telling *GBRoute* to choose A and B roads in preference to motorways?

A *GB Route Plus* enables you to assign a bias rating to the six different types of road that it supports. By default, the bias settings for all six road types are set to the same value, so *GBRoute* chooses roads according to their speed and convenience rather than personal preferences.

If you want to change this so that *GB Route* steers well clear of motorways, simply adjust the bias rating of the other five road types to x6 and leave motorways set to x1.



***GB Route* can be made even more useful yet, if your read our handy tips**

Download dilemma

Q When I try to run programs I have downloaded from a BBS, I get the message 'File is not an object module'. What is going wrong?

A It sounds as if you haven't de-archived the programs you've downloaded from the Bulletin Board Service.

Archiving is necessary to pack several files into a single compressed file that can be downloaded in one go to save valuable disk space and make downloading as easy as possible.

To de-archive a file, you need an archive utility that is compatible with the archiving technique used on the file you have downloaded. The most common archiving technique used is LHA format. There are absolutely loads of de-archiving utilities available that can handle this format – just leave a message to the Sysop on the board you use asking for an LHA compatible de-archiving utility.

When you de-archive a program you have downloaded, always work in an empty directory. Because de-archiving can create several different files and even new directories, having them all contained within a single directory will make life considerably easier when you come to install the software on a different disk (or your hard drive).

3D convert

Q I'm finding it hard to construct objects in my ray-tracing program using the built-in tools. Is there a utility that converts bitmapped images to 3D objects? Also, a friend has a library of 3D objects that are not compatible with my program, is there a good 3D object converter?

A There is one utility that will do both these tasks. It is called *Pixel 3D 2.0* and is available from HB Marketing on 0753 686000. The current release of *Pixel 3D* supports a number of different object formats including Imagine, Sculpt, VideoScape, 3D Professional, Turbo Silver and LightWave 3D formats.

Card times

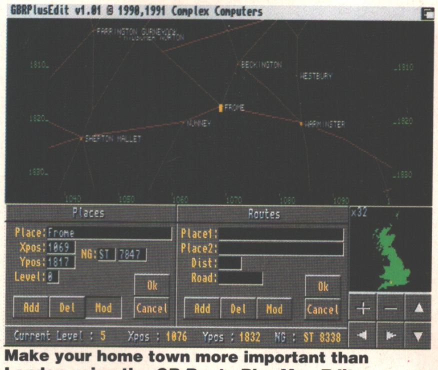
Q Why won't my Supra 2400zi internal modem card work with *NComm*? I've tried *NComm* with my friend's modem and it works fine.

A You need to be able to change the name of the device used to communicate with the modem. By default, communications packages such as *NComm* use the standard system device driver called `serial.device`. To get your 2400zi to talk to *NComm*, you need to first install the `modem0.device` driver software bundled with your modem into the Devs: directory of your boot disk and then change the device driver in *NComm*. To do this, boot up *NComm* and then click on the Select Device option from the Com pull down menu. A requester containing a single string gadget should appear (by default, it will contain `serial.device`). Change the device name to `modem0.device` and save this change to disk. You should now be able to use *NComm* with your 2400zi modem.

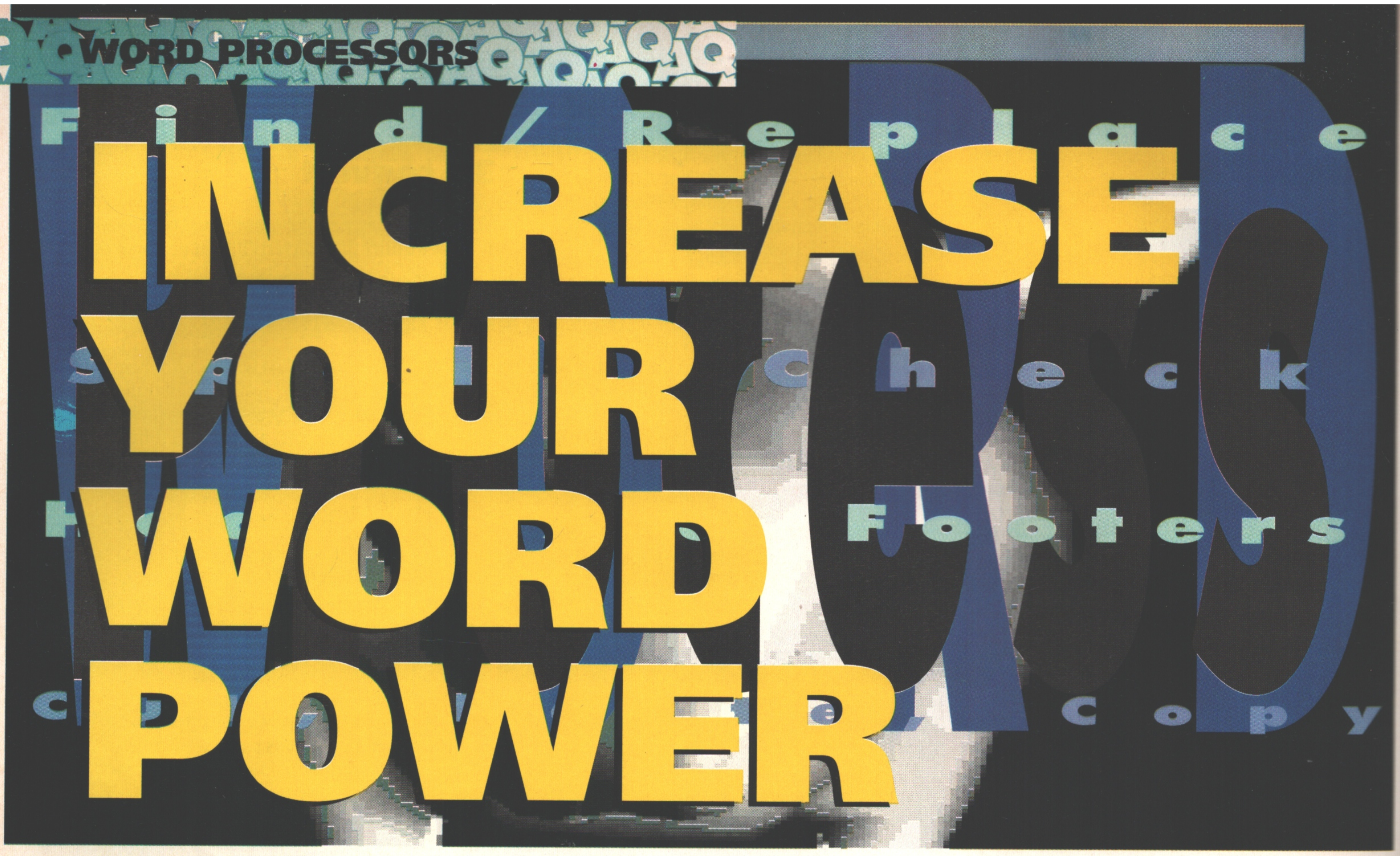
Colour editor

Q Can you recommend a colour font editor?

A The only decent colour font editor we've seen is *Calligrapher* from Interactive Softworks in the States. It may be difficult to find (it is over six years old), but you could try HB Marketing on 0753 686000. Although *Calligrapher* may be rather old, it has to be said that it's still a very capable package indeed. It enables you to create colour fonts with up to 16 colours using its own built in editing tools and you can also load in *DPaint* Brush files, therefore enabling you to design your colour fonts in *DPaint*.



Make your home town more important than London using the *GB Route Plus* Map Editor.



INCREASE YOUR WORD POWER

Text is next on the agenda, as we answer your questions about how to get the most out of your word processing time with your Amiga...

The first text

Q What is a text editor?

A A text editor is a simple program for editing or creating text files. The workbench utility, ED, and the Public Domain program *QED* are text editors, and they're useful for making short files containing small amounts of text. They are very basic, making use of outdated key-commands rather than enabling you to use a mouse. Our advice is, unless you need to produce a very simple ASCII file, you should avoid text editors.

The real process

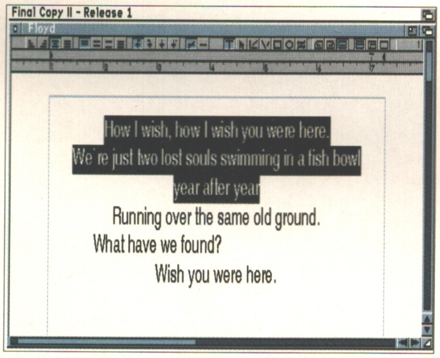
Q What is a word processor?

A A word processor (such as *Protext* or *Kindwords*) is a program designed to create and print documents. It can edit text files, but it is geared more towards creating documents for printing. It gives you more control over the text than a text editor, by enabling you to use multiple typefaces, type sizes and fonts. You can also justify text, and often include simple graphics using a word processor

DTP or WP?

Q How does a a desktop publishing (DTP) program differ from a word processor?

A A DTP program (such as *Professional Page* or *Pagesetter*) is primarily used for designing the way that finished pages will look rather than how



***Wordworth* is one of the only pieces of software with a version to support the new AGA standard.**

the text will read. The line has been blurred recently with programs such as *Wordworth* and *Final Copy* enabling you to do limited graphics work. However, if you think in terms of WPs for text and DTP for design, you won't go far wrong.

ASCII a quessie

Q What is ASCII?

A This stands for American Standard Code for Information Interchange. It`s a standard way of defining characters which is common to all computers. In theory, a text file that contains only these characters should be readable by any word processor on any machine. However, you can`t save any formatting information, such as the font and the character size.

PC the action

Q I`ve got several documents that were produced on a friend's PC and others that were created on an Apple Mac at work. Can I read them into my Amiga word processor?

A This depends on the word processor you`re using on both the PC and the Amiga. *Wordworth* enables you to read-in documents that you produced in the PC programs *WordPerfect* version 5.1, Microsoft *Word* and *Windows Write*, as well as ones which have been saved in Rich Text Format (RTF). You can also save documents in these formats, so you can move your Amiga documents to your PC.

Both *Wordworth* and *Final Copy* will also import ASCII text.

In order to read and write to a PC disk, you`ll need to use either *CrossDOS* (which is included in Workbench 2 and higher), or the PD program *MessyDOS*. Text from a Mac can be saved on to a PC disk using Apple File Exchange or PC Exchange.

Rich in spirit

Q I`ve heard of a format called Rich Text Format (RTF). Where does it come from, and can it be used on Amigas?

A This is another format in which text can be saved for moving documents between programs, but unlike ASCII this one includes information such as underlining, bold text and page breaks. It`s widely used in PC programs such as Microsoft *Word* and *Ami Pro*. On the Amiga, *Wordworth* and *Protext* can read and save RTF files.

Present WordPerfect

Q Why isn`t the industry standard program *WordPerfect* available for the Amiga?

A WordPerfect Corp produced versions for the Amiga up to version 4.1, but there was insufficient demand for any further versions. Which, if you ask us, is good news. *WordPerfect* is dated and far from being any standard (let-alone Industry Standard) on the Amiga. We suggest you use the superior power of *Protext* from Arnor.

Amiga format...

Q What format should I save my files in?

A If you're not planning to swap files between different programs, stick with the format that`s unique to the program you are using. If you`re planning to swap files between different programs or machines, you'll probably want to use either ASCII (See question above), or Rich Text Format (RTF) if the other word processor can read it. Both *Wordworth* and *Final Copy* can save files in ASCII, but only *Wordworth* supports the RTF standard.

Saved!

Q I`m afraid of losing my document if my machine crashes. What`s the best way of dealing with this possibility?

A The obvious thing to do is to save the document at regular intervals. However, it's easy to forget to save a document, so the best way to avoid the trauma of losing an unsaved document is to set your program to save automatically every few minutes. In *Wordworth*, select Preferences from the *Wordworth* menu. Click on More, and click the Timed Save box. You can then enter a time in minutes, and the program will save your document at this interval, without interrupting the user.

Your new title

Q I want to put a title into one of my documents, but with larger characters than the rest of the document, how can I do this?

A The size of text is measured in units called points, and when you first type text, the word processor uses a standard size, usually 10 or 12 point. To change the size of text, you will need to change the point setting. This is in the Type Specs item of the Text menu in *Final Copy*, and is in the Typeface section of the Format menu in *Wordworth*.

Fight for the title

Q I`ve already entered the title, but it`s in the wrong size. How do I change it?

A In order to alter anything about a part of a document, you'll first need to select the text to be revised. This is done by clicking and holding the left mouse button at the start of the text, and moving the mouse over the rest of the part to be altered. This will turn the text into black on white, and if you now alter the size of the text, the selected section of text will be changed.

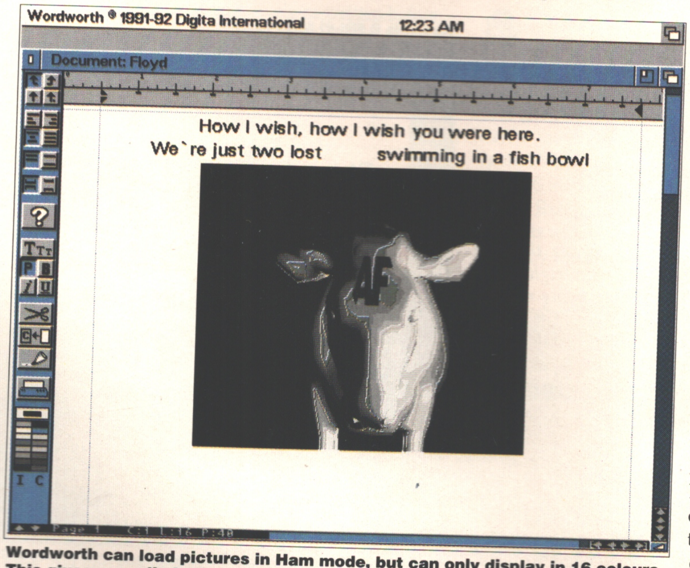
This page was developed using Quark *XPress* on the Mac. You and your Amiga could use the text (saved in ASCII form) with no problem, the whale graphics are Amiga produced anyway.

Word publishers

Q When does a word processor become a word or document publisher?

A Modern word processors such as Wordworth and *Final Copy* include some of the functions of DTP programs, in that they enable you to import and manipulate graphics – this has lead them to be called Word-Publishers. It should be said that if you simply want to write the occasional letter or report, a word publisher is too much for you.

The ability to use screenshots and digitised images is fast becoming par for the course in Amiga word processing and, with the advent of multimedia as a reality for the home user, you can expect to hear the death knell sounding for the straightforward, old fashioned word processor, (there's a few years to go yet though).



Wordworth can load pictures in Ham mode, but can only display in 16 colours. This gives you a limited ability to indulge in desktop publishing.

Kerning yearning

Q Using *Wordworth*, there`s a box marked Kerning in the typeface section. What is this?

A Kerning relates to the space between letters in a word (don't confuse it with Tracking, which is the space between words). Kerning comes in handing in word processing if you have mucked around with a typeface in order to make it look snazzy. For example using **certain faces in a condensed form can cause problems** (the 'l' and 'e' in the word 'problems' for example could seem a trifle close, and the 'r' and the 'o' could seem a little to far apart, so you could Kern them as follows:

problems
problems

It's all very much a matter of taste, and it also brings us into the realms of 'Kerned Pairs' – pairs of letters in a typeface family that are specially designed to be automatically kerned when they are typed in next to each other.

Oh blocks!

Q I want to move a piece of text from one part of a document to another. Is this possible?

A Highlight the text you want to move by clicking and holding the left mouse button at the start of the text, and moving the mouse over the rest of the part you want to move, and then select Cut from the edit menu – you have created a Block of text. Cutting removes the text from the document and places it in the clipboard (in memory). If you then move the cursor to the point where you want the text to be inserted and then select Paste from the edit menu, your text will be inserted at that point in the document.

Merges commission

Q I`ve got two documents that I want to merge together. How do I do it?

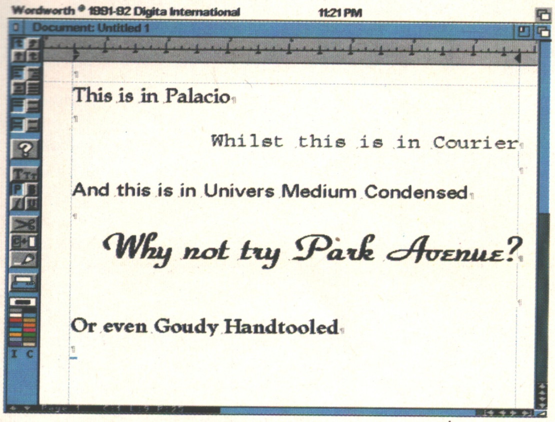
A Regrettably, neither *Wordworth* or *Final Copy* enable you to merge documents. The only way of doing this is to load the two documents separately, select all of one, copy it to the clipboard and paste it into the other document.

Clippy

Q So, what is the clipboard?

A The clipboard is a temporary storage area in memory, where the word processor will store text that has been cut or copied from a document. It is independent from the document, so it`s not lost when you load a new document. But it's lost when you quit, so it can`t be used to copy between different programs.

continued on page 90



How many different typefaces and fonts do you want? With the Amiga, and the right software, the choice is nearly unlimited.

Find an answer

Q What does Find&Replace do?

A This is a function that enables you to search through an entire document, and replace every occurrence of a specific word, character or phrase. For instance, if you`ve written a document, and you then discover that you`ve put the wrong person in it, you can search out every occurrence of the wrong name, and replace it with the correct one.

The Find&Replace function is easy to use and is usually operated by either highlighting the suspect word and then selecting the Find&Replace (also called Find&Exchange) option, or by selecting the option and then entering the suspect word.

Justify, my love

Q What is justification?

A Justification is the way in which the text is placed on the page, relative to the margins. In *Wordworth* and *Final Copy*, text can be justified four ways: left, right, centred and full. This controls the way the text is placed on the page . For example:

This text is right justified. This means that it is drawn to the right margin.

This text is left justified. You can recognise left justified text because each line starts at the left margin.

This text is centre justified. This means that the words are centred on the column.

This text is fully justified. This means that the text starts at the left margin, but the right hand side of the text lines up, rather than being ragged.

This is what you see

Q What does WYSIWYG mean?

A WYSIWYG (pronounced Wizzywig) is an abbreviation of What You See Is What You Get. This means that the document should look the same on the screen as on the printed page. So, all of the fonts and graphics used in the document will be shown. This is useful for seeing how the overall document looks before you print it. However, this function requires a lot of processing power, and it can therefore take longer than usual for pages to redraw. In order to speed up the redraw time, some programs enable you to turn off the WYSIWYG option. To do so in *Wordworth*, select Quick Screen from the *Wordworth* menu. You can`t turn off WYSIWYG in *Final Copy*.

Print out pages

Q How do I print out from my word processor?

A To print your document, select Print from the project menu. This will bring up a requester which enables you to control how much of the document you print, and in what order you print it.

Foul! Pref!

Q Can I alter the printer Preferences settings from within the program?

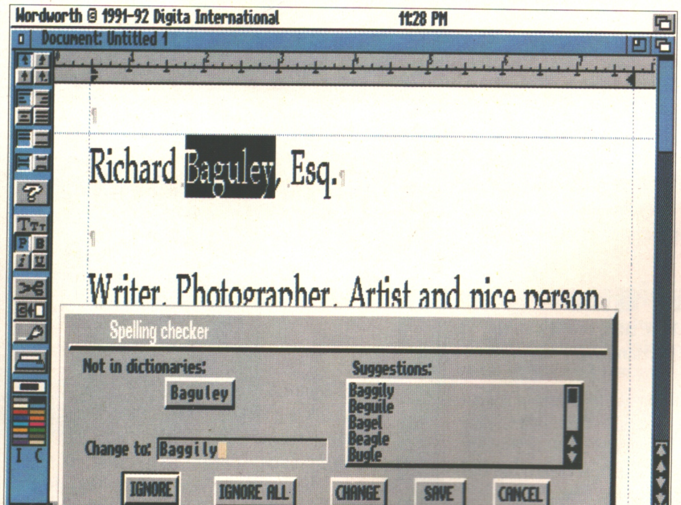
A Both *Wordworth* and *Final Copy* enable you to alter the preferences settings of the printer. In *Wordworth*, click on Setup in the print requester. In *Final Copy*, the preferences can either be altered in the print requester, or by clicking on Graphic.

Check, mate

Q How do I do a spelling check? And why does it always query proper names?

A To check the spelling of an entire document in *Wordworth*, choose Speller from the Extra menu. Click on Spell, and the program will check through the document. If it comes across a word that's not in its dictionary, it will, in *Wordworth*, suggest a replacement. If you are using *Final Copy*, you must click on Suggest to get a list of possible replacements. Names are usually queried if they aren`t in the dictionary that is supplied with the word processor.

If it`s a name or word you use often, it is a good idea to put it into the user directory, which is a small additional set of words that can be added to by you as you spell-check documents.



Spell-checking was one of the micro-world's favourite sports a few years ago when it was a sad and desperate place. Now we have decent spell-checkers.

Your preference

Q Which Printer Preference settings should I use to get the most from my WP?

A Experimentation is what you need. Different printers will give better results on different settings, so try printing out a few sample documents at various settings.

If your document is just text, you'll probably get the best results by keeping the density fairly high. If it includes graphics, you`ll probably achieve best results with a lower setting.

You may also want to experiment with different types of paper. Heavier papers absorb more ink and therefore give stronger blacks. Again, trying using several different types of paper will give you a better idea of what combination of Preferences and paper types work best with your printer.

Really WYSIWYG?

Q Will my document really look like it does on screen when I print it out using WYSIWYG?

A No. An Amiga screen is 320 dots or pixels wide, while a page printed on a typical laser printer is over two thousand dots wide. The page you see on the screen is an approximation of the printed version.

A postscript

Q What is PostScript?

A PostScript is a page description language but instead of using commands to control your Amiga, it contains commands which describe the way a page is composed. PostScript holds details about which fonts are used, what size the characters are, and where on the page they go. The PS-compatible printer, which is a computer in its own right, uses these commands to work out how to print the page.

You can print out a PostScript document on a desktop laser printer, and then take the very same same file to a professional typesetting agency and, except for the difference in printer resolution (the number of dots used per inch), the two printouts would look very much the same as each other.

PROGRAMME TO SUCCEED

IF you're bothered by Basic or can't C the light, THEN read this section. FOR you will find the answers will help you to take the NEXT step...

Lattice prey

Q I'm using the built-in sorting functions of Lattice C to sort an array of strings into alphabetical order. The only trouble is, the routine will only sort the strings in ascending order, whereas I need them to be in descending order. Any suggestions?

A Well, by far the easiest solution is to use the `Ascending Sort` routine and then, when you come to use the information, simply read it from the sorted array in reverse order.

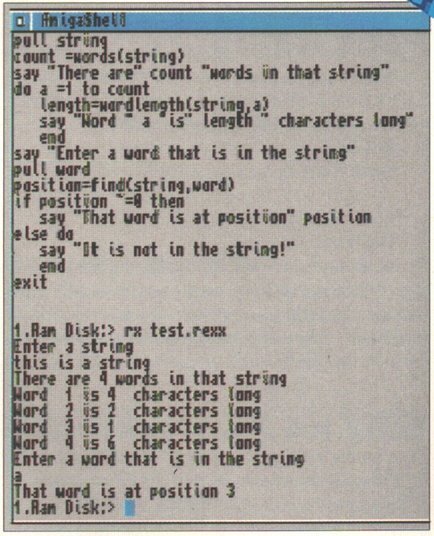
No basic answer

Q Looking through computer magazines, I often see listings written in Amiga Basic. I've heard that Amiga Basic is supposed to be on the Extras disk but I can't find it anywhere.

A Since the launch of the A500 Plus, Commodore has stopped including Amiga Basic with its machines. If you want to program, then you have two choices. The first is to buy a commercial programming language. HiSoft's version of Basic is very good. Contact the company on 0525 718181.

If you intend to write more games-orientated programs, then *AMOS*, from Europress (0625 859333) may be your best bet. With both packages, though, you will find that you have to make changes to the Amiga Basic listings before they will work.

Alternatively, you could make use of the new programming language that is supplied with the Amiga. Called ARexx, it is a very powerful language particularly suited to the Amiga's multi-tasking facilities. It isn't Basic, though, and any Basic programs will have to be extensively re-written before they will run as ARexx programs. You will also need a good book, such as the *ARexx Cookbook* published by Abacus, available from The Amiga Workshop on 071-274 4407.



ARexx's multitasking abilities make it ideal for controlling several Amiga applications at once.

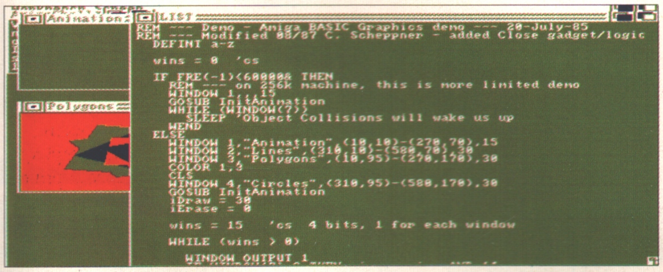
AMOS, really

Q How do I make my AMOS programs run independently of the editor?

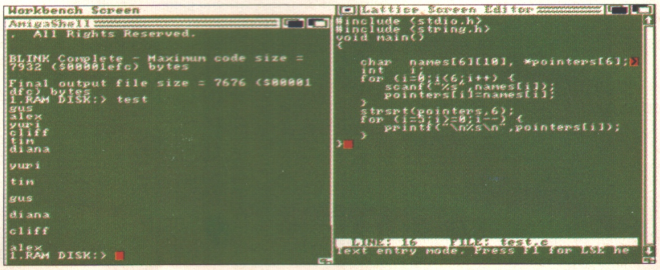
One way of making *AMOS* programs run independently of the editor is to compile them. Another advantage this brings is an increase in speed.

A One way is to use the *AMOS* Compiler, which will convert your program to a file that can be executed in the same manner as any other Amiga program. It is, however, perfectly possible to make your program run independently without forking out for the compiler. First, format a blank disk. Then open AMOS in the usual way and load in the RAMOS installation program which is kept on the AMOS Extras disk. Once this is run, a series of disk prompts will follow, during which time the program will copy the necessary files on to your blank disk.

Continued on page 92



Amiga BASIC is no longer supplied with the Amiga. Now you can either use ARexx or invest in a commercial BASIC package



If you want to be able to obtain a Descending Order from a `Sort` function, a handy tip is to reverse the order in which the array is read in the program.

Once the process is complete, you need to copy your own *AMOS* program on to the disk. Use the *AMOS* 'Save As' option. It must be saved under the name `AUTOEXEC.AMOS`.

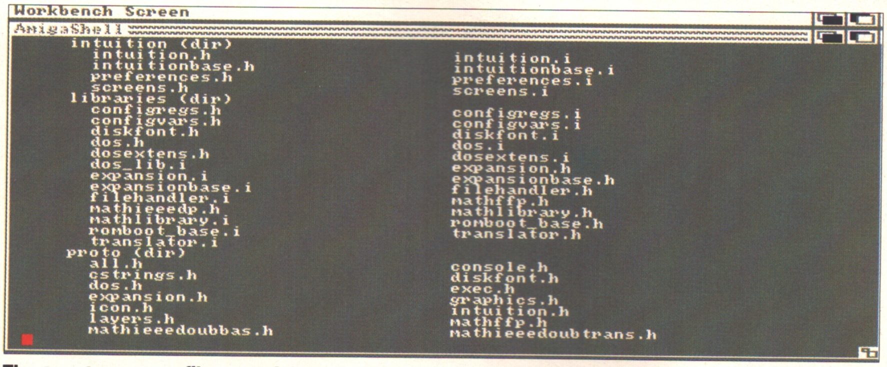
Finally, you must make the disk bootable. This is easily done from AmigaDOS by opening a Shell and typing:

```
install ?
```

When the prompt appears, insert your disk into the internal floppy drive and type:

```
df0:
```

Having done so, you can boot from your new disk and run your *AMOS* program automatically.



The `Commodore Include` files contain a host of type definitions as well as functions for accessing parts of the operating system. Here's just a small part of the entire set.

Again and again

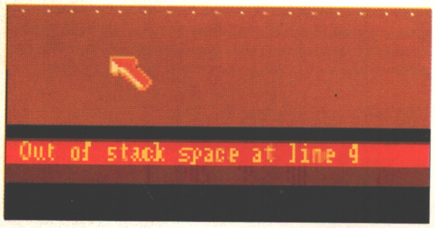
Q I've written the following program in AMOS:

```
P[0,2]
Procedure P[X,Y]
    Plot X,Y
    P[X+8,Y]
End Proc
```

As you can see, it's recursive. The trouble is, whenever I run it I get an `out of stack space` error. Can you help?

A Whenever a procedure is called, some information about the current state of the program is stored in an area of memory known as the 'stack'. Once the procedure has finished, this information is removed from the stack, thus freeing up memory, and is used by the computer to enable it to continue executing the program from where it left off.

This is all fine and dandy, but in the case of a recursive procedure – one which calls itself – the procedure does not end until after the call has been made. This means that more and more stack space is used up for each call of the procedure. In your case, the procedure P calls itself indefinitely. It only stops when the computer has run out of stack space – in other words when it has run out of available memory. In practice these sort of recursive procedures aren't much use, anyway. The solution here is to include what is known as a terminating condition in your procedure.



Uncontrolled recursion always leads to the same thing – gobbling of stack space. Putting in a conditional is the only answer.

For instance, in your example there is little point in plotting points beyond the righthand end of the screen, so the procedure should only call itself if the variable `X` is lower than the screen width (let's say 320 for the sake of argument). Therefore, a corrected version of your program looks as follows:

```
P[0,2]
Procedure P[X,Y]
    Plot X,Y
    If X<320 Then P[X+8,Y]
End Proc
```

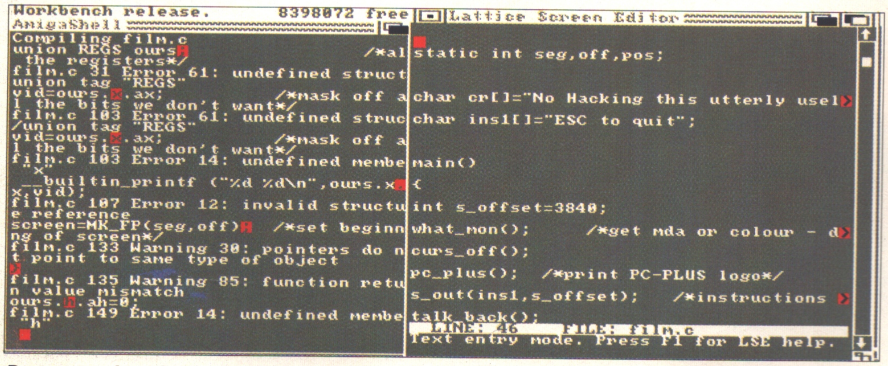
Although successive calls to `P` will still use up a good amount of stack space, the recursive calls will terminate well before a problem occurs, and then the stack space will be successively made available once more by the series of `End Proc` statements.

Why no PC working?

Q In the process of teaching myself to program in C I've been trying to compile programs originally written for the IBM PC, on my Amiga. They won't work. Why not?

A If the programs are simple ones that don't produce graphics or rely in any way on the PC's hardware – if they are the ones that produce and expect only text input and output – then they should work on the Amiga, unless they are written to the newer ANSI (American National Standards Institute) standard and you are using an old C compiler. Most compilers nowadays use the version of C ratified by ANSI , though some PD versions, such as NorthC, adhere to the original definition given by the language's designers. The differences are not great, but they are sufficient to cause compilation problems. If this is the problem in your case, then you will have to modify the programs before compiling them.

On the other hand, it could be that the programs are using libraries exclusive to the PC. It will be much harder to get such programs to work on the Amiga – you will need a good knowledge of the both the PC and the Amiga before you can attempt the large modifications to the programs you will need to make. A much better idea would be to have a look at the large number of C programs written specifically for the Amiga which are available in the Public Domain…



Programs written for the PC which make use of PC library calls will not work on the Amiga without extensive modification, even if your Amiga compiler uses the ANSI standard.

PD C for me please

Q I have got hold of a Public Domain C compiler, but understand that I need some further files before I can make full use of the Amiga's features. If this is so, can you tell me where to get them please?

A The files you refer to are called the `Include Files`. They contain lots of definitions and links to the Amiga's operating system that are necessary to produce programs that use graphics, sound and so forth. You can get them by sending a cheque for £25 made payable to Commodore Business Machines (UK) Ltd to the following address:

Sharon McGuffie
Commodore Business Machines (UK) Ltd
Commodore House
The Switchback
Gardener Road
Maidenhead
Berks SL6 7XA

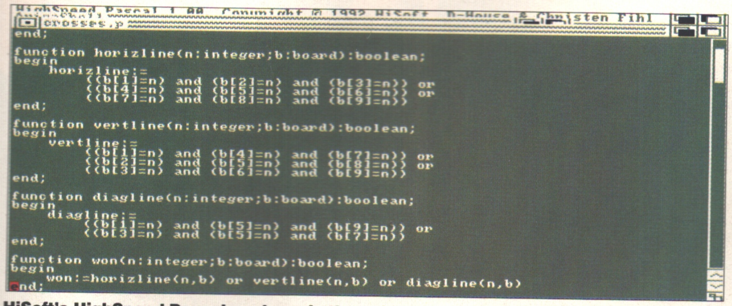
Oh, and ask for the *Native Developers' Toolkit*.

Ici Monsieur Pascal

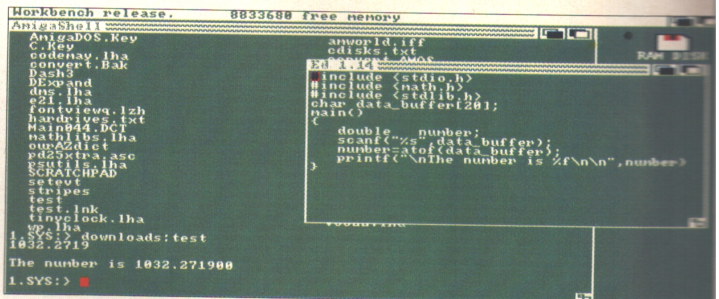
Q A friend has a number of Pascal programs written for the PC. Is there anyway I can get these to run on my Amiga?

A There is only one commercial Pascal package available for the Amiga. It's called HighSpeed Pascal, and costs £99.95 from HiSoft, which can be contacted on 0525 718181.

If your friend's program was written in Turbo Pascal, certainly one of the most common PC Pascal



HiSoft's HighSpeed Pascal package is the only one of its kind for the Amiga. With Pascal being such a common academic language, a very useful package it is too.



Get around *NorthC*'s inability to input floating point numbers with some jiggery pokery with strings and the C function `atof()`.

implementations, then you're in luck because HighSpeed Pascal is compatible with it. If not, then you'll have to make a few changes.

Either way, you will have to re-compile the source code on the Amiga. You simply cannot run PC programs on the Amiga without an emulator of some description.

Down ARexx!

Q I am writing a program in ARexx which needs to compute fractional exponents. Whenever I run it I get an error code 48, which I presume means that ARexx cannot calculate a fractional exponential. Is there any way around this problem?

A The easiest solution is to obtain a copy of `RexxMathLib`, which makes available a host of high-level maths functions to ARexx.

You'll find it in the Public Domain on Fred Fish Disk 227 at most good PD libraries.

A floating point

Q The program I'm currently writing makes a lot of use of floating point numbers. Unfortunately, I'm writing it using NorthC, a compiler that does not support floating point input via the `scanf()` function. Any ideas how I can get around this and still input floating point numbers?

A The easiest way is to input the number into a string variable. You can then use the function `atof()` to convert this string into a double precision floating point variable. The function can be found in the `<stdlib.h> library`. A piece of code to input a floating point number might look as follows:

```
#include <stdio.h>
#include <math.h>
#include <stdlib.h>
char     data_buffer[20];
main()
{
   double        number;

   scanf("%s",data_buffer);
   number=atof(data_buffer);
```

Handling with care

Q The program I'm writing at the moment involves an awful lot of text handling. I'm using assembly language, and I've managed to print text to a window using the Intuition library call `PrintIText()`. So far so good.

The problem is: how do I erase the text, so the window is ready to display some more?

A There are a few solutions available to you. Firstly, you could set the `RP_COMPLEMENT` flag in the `IntuiText` structure you are using, and then print exactly the same text again.

This sets the Amiga into Complement Drawing mode, and means that when the text is re-written it will erase its own image beneath.

Alternatively, you can clear the whole window by calling the `SetRast()` graphics function.

But if you only want to clear selected areas of the window, then your best bet is to draw a rectangle over it in the background colour. This can be done with the `RectFill()` function.

Scrolly scrolly

Q I'd like to know how to make text scroll across the screen in the form of a sign wave, as it does in some PD demos. Can you give me an example of how to do it in *AMOS*?

A You can get this sort of effect quite easily. The first step is to store the text you want printing in a string array.

You can then use *AMOS*' `Mid$()` function to select any portion of the string; in this case we'll be wanting to print a single character of it at a time.

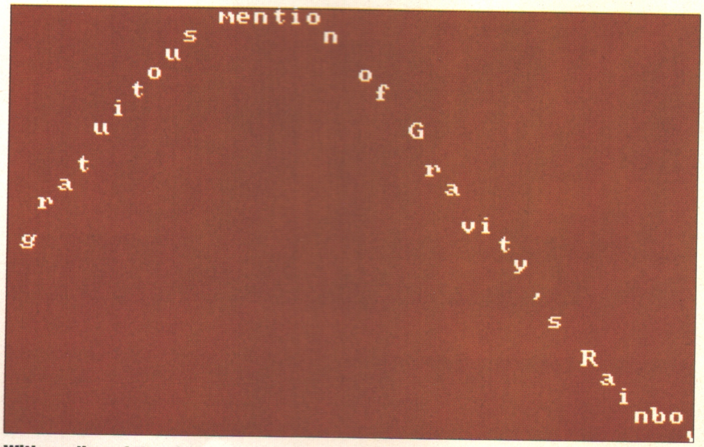
For the sake of argument, let's make the message scroll from right to left. We then have to print each character of the string in turn on the far right of the screen.

Having done this, the screen needs to be scrolled to the left. This is done using the `Hscroll` command. Then the next character is printed, and so on. The next character to be printed is kept track of by an integer variable, `POS`, which is increased after every scroll. Once it goes beyond the total length of the string, it is set back to the beginning so that the message keeps repeating.

That's the easy part. To make the text come on in the shape of a sine wave, then the vertical position of each character as it is printed on the right must be varied. This vertical position is determined by the sine function; but since this produces a number between +1 and -1 it must be scaled to fit the vertical screen size and also be shifted so that a value of zero corresponds to half-way up the screen. The angle used in the sine computation is stored in a separate variable called `ANGLE#` – the hash sign means that the variable can hold non-integer numbers, and is necessary because the sine function operates on angles measured in radians. After every scroll, the `ANGLE#` variable is increased by 1/12th of a radian. Once it has gone beyond twice pi radians (the angle of a whole circle) then it is reset to zero. The listing is as follows:

```
MESSAGE$="I'd like to take this opportu-
nity to thank the editor for allowing me
a gratuitous mention of Gravity's
Rainbow"
POS=1 : LASTPOS=Len(MESSAGE$)
X=39 : ANGLE#=0
Do
   Hscroll 2
   Y=Sin(ANGLE#)*11+12
   Locate X,Y
   Print Mid$(MESSAGE$,POS,1)
   POS=POS+1
   ANGLE#=ANGLE#+3.142/24
   If POS>LASTPOS Then POS=1
   If ANGLE#>=6.284 Then ANGLE#=0
Loop
```

Smoother scrolling messages could be created by using a `BOB` for each of the letters. This would gives you access to the full resolution of 320x256, rather than operating in a 40x25 character grid.

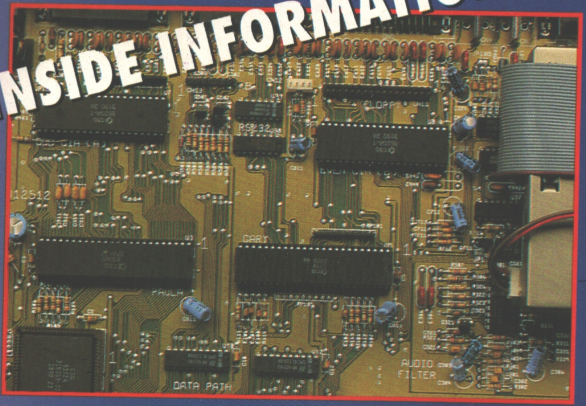


With scaling of the sine function along with the horizontal scroll command, *AMOS* can be made to produce attractive side-ways scrolling messages.

Continued on page 130

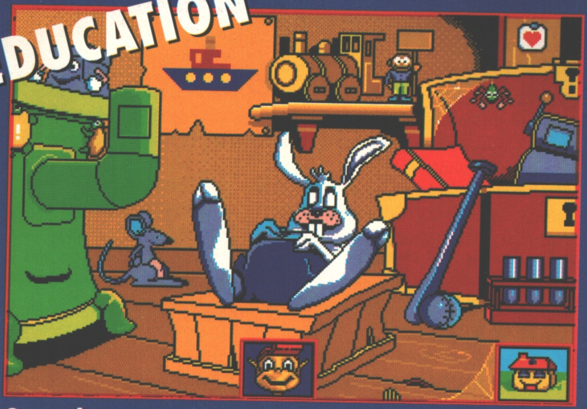
Get to the heart

INSIDE INFORMATION



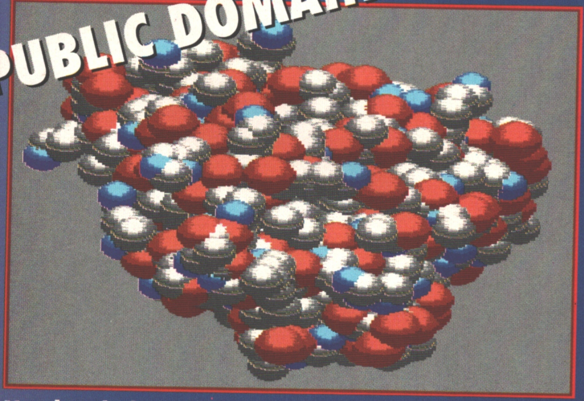
Learn exactly what makes your Amiga tick with our ambitious new series. From logic gates upwards, we explain how all the components fit together to create the heart of this powerful machine

EDUCATION



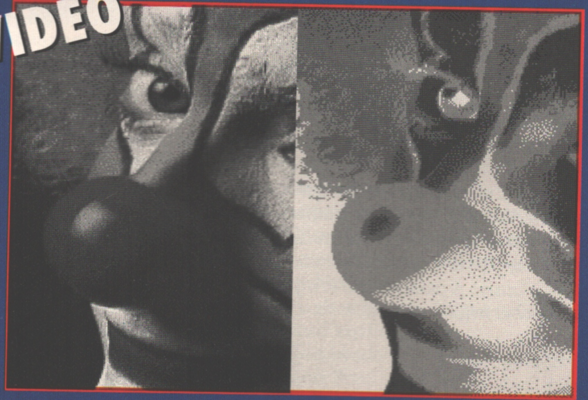
Our education column helps you explore ways in which you can use your Amiga to supplement your children's schooling. This month we take a look at *ADI Junior*, a revolutionary range of packages from Europress Software

PUBLIC DOMAIN



Hard to believe but true – there are literally thousands of free programs out there available for the price of a disk. We sort the handy from the useless; shown above is a program that draws molecular diagrams

VIDEO



Video is an area in which the Amiga excels. We take a look each month at the products and techniques available to help you make the best possible presentations. This month: a review of *Personal Paint* and more

AMIGA *ANSWERS*

Although the Amiga is an easy machine to use, it's inevitable that you'll run into problems sooner or later. We're here to help – we've assembled some of the top names in Amiga computing to give detailed answers to your questions every month

Ev
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let

# of your machine with

Every month we delve deeply into the serious side of the Amiga, its software and its hardware. If you do more than just play games, then let *Amiga Shopper* be your guide

GENERAL ENQUIRIES

This is the part with all those questions that don't fit in anywhere else, so if you want to find out how to stop your floppy disk drive clicking, or where to find a garden design program, read on...

Clickin' lickin'

Q One thing that really hacks me off about the Amiga is the way its floppy drives keep clicking away if there are no disks in them. Is there a way to stop this infernal noise?

A A Public Domain program called *NoClick* will do just that. It eliminates drive click until the Amiga is reset or switched off. It's available from a number of PD libraries, including George Thompson Services on 0707 391 389, who include it on a two disk collection called Workbench 2.0 Utils.

Spectrum analyser

Q Can I get an emulator for the ZX Spectrum. How do I load my tape-based programs?

A The solution you need is a sound sampler. These devices, available for as little as £25, will convert sound signals into a file on disk that the Amiga can read as well as any other.

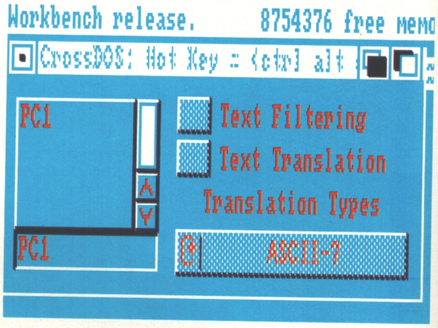
The sampler plugs into your Amiga's parallel port. You then play the tape through it and give the finished file to the emulator for execution.

Don't get PC

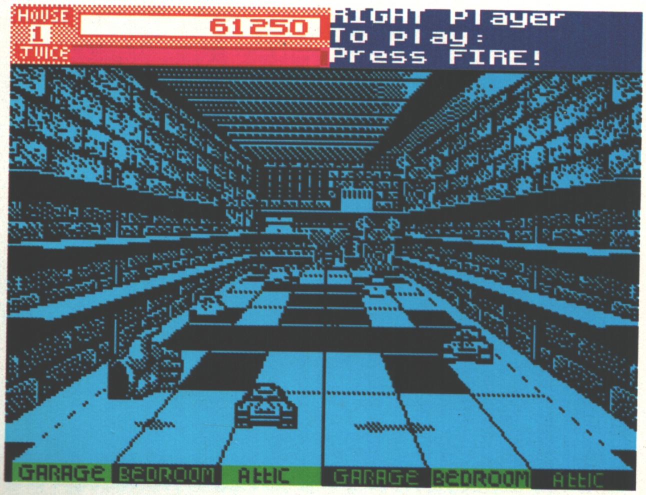
Q Is there a way to transfer PCX images created on a PC for use on my Amiga?

A Yes, but there are two stages you have to go through. The first is to transfer the image files themselves. You'll have to put them on to one or more PC disks. If you are using Workbench 2.1 or higher, then you'll be able to read this disk immediately thanks to the built-in *CrossDOS* program. Otherwise, you'll have to either buy *CrossDOS* or get hold of a PD program such as *MessyDOS* which will read PC disks. Once you've copied the files on to an Amiga disk, the next step is to translate them into the image format the Amiga understands. It's called IFF, which stands for Interchange File Format. The best package for this kind of work is ASDG's *Art Department Professional*. This will happily transfer pictures between a number of file formats, including PCX and IFF, as well as carrying out other more sophisticated image processing operations.

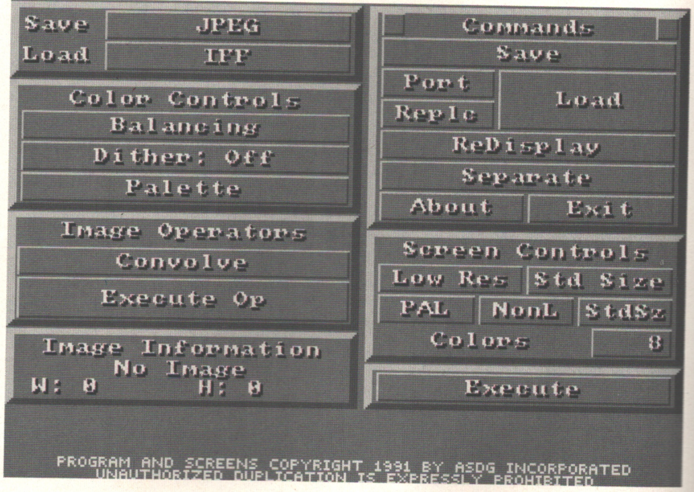
ADPro is an expensive program (£179.95 from Silica on 081-309 5000) and if you only want to convert a handful of images then you'd be better off



CrossDOS featured in *Amig Format*'s issue 40 Coverdisk. We are good to you, you know.



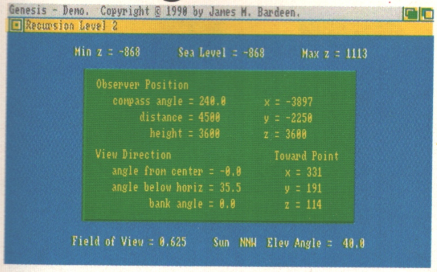
Believe it or not, it is possible to run Spectrum programs on the Amiga, but you'll need a sound sampler to load them in from tape.



ASDG's *Art Department Professional* is the best program for converting between different graphic formats. It's also useful for general image processing work (!).

looking for a PD solution. If you can convert the images on the PC to a file format called GIF, then a PD program for the Amiga called *GIFMachine* will translate them back into Amiga format. Thankfully the GIF file format was especially designed for transferring graphics images between different kinds of computer.

Trek magic



Fractal landscape generation programs such as *Genesis* can create impressive effects, but you could be waiting a long time for your results unless you've got an accelerator.

Q **I'm looking for a program to help me to produce fractal-based landscapes, as used in the Star Trek film *The Wrath Of Kahn*. Is there such a thing available for the Amiga?**

A There are two such programs available. One is *Genesis*, published by MicroIllusions and sold for £49.95 by Software Business on 0480 496497; but by far the most sophisticated is *Vista Pro* 3 published by Virtual Reality Labs and distributed for £69.95 in the UK by DMI PLC on 0753 686 000. *Vista Pro* will give you absolutely stunning results, but it does require a minimum of 3.5Mb of RAM, and you're going to find it heavy going without a hard disk.

Terminally thrilled

Q **I need a terminal emulation program that will handle 1200/75 Videotex-type data, as used by Prestel and AT&T/Istel for the travel trade. Is such a program available for the Amiga?**

A We have the very thing. The utility you're after is called *RubyComm*, it's available from Y2 Computing on 0923 50161.

This is the BBC

Q **At school we used to use a BBC Micro with a Teletext adaptor fitted. Is there a similar adaptor available for the Amiga?**

A There sure is, it's called MicroText and it's available from MicroText on 0705 595694 for the princely sum of £143.50.

Garden known

Q **Are there any garden design programs for the Amiga?**

A Yes, there is one on 17-Bit Software's *Update 23 Landscape* disk mag. Call 0924 366 982.

Vista Pro 3: is yet another major fractal hit in the Amiga Format suite of plush offices. Creating your own world is often a better bet than making do with the amount of flannel, hype and dross that occasionally gets flung at you in this one!

Bill stickers

Q **Is it possible to use my Amiga to pay my bills? Normally I do it by phoning up my bank's central computer and using the beep tones on the dialling pad to answer the computerised questions that I'm asked. Can this be automated?**

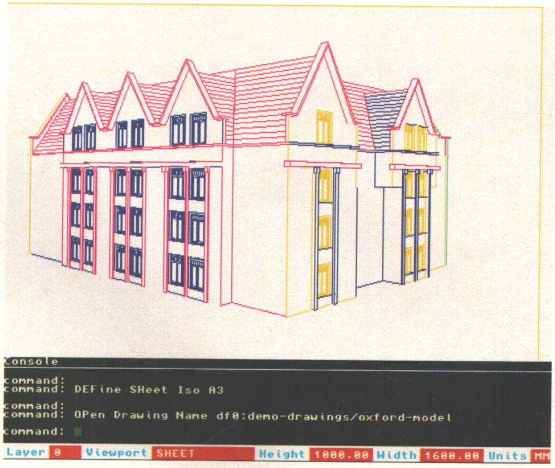
A There are programs available to emulate the tones produced by a touch-tone phone. The trouble is, you would have to hold your telephone receiver right next to the monitor speaker in order for the beeps to be heard by the bank's computer, which rather defeats the point of using your Amiga to make the process easier.

The only other suggestion we have (well the only sensible one, given the current state of British telecommunications) is to change banks: the Royal Bank of Scotland offers a true computerised on-line banking service.

Justifying text

Q **I'm studying electronics at college, and was hoping to use my Amiga to help me (it'll also justify me having it to my mum and dad, who thought I should have got a PC in the first place). Are there any programs that will enable me to design circuit boards?**

A What you need is a CAD (Computer Aided Design) package. There are now several available for the Amiga. ExpressWorks (0252 726255) sells *DynaCADD* for £650, and Marcam (071 258 3454) sells *Ultra Design* for £200. Perhaps the most popular package is *X-CAD*, which is sold by Digital Multimedia (0702 206165) in a number of configurations starting at £129.



Digital Multimedia markets one of the best Amiga (or any home computer) Computer Aided Design packages – *X-CAD*.

Satellite state-ment

Q **What do I need to receive satellite pictures on my Amiga?**

A If you have all the necessary hardware already, then all you need is AmigaSat, a package costing £163. As well as grabbing images from satallite, the program will perform a host of image processing functions, including noise filtering and colour correction.

AmigaSat can be bought as part of a package including all the hardware you need for £887. This comprises a dish antenna, a down converter (for converting METEOSAT's signals down from 1.7GHz to 137MHz) and a receiver capable of being tuned to between 136 and 138MHz. If you're receiving from METEOSAT, a geo-stationary weather satellite, then you will only have to set your dish antenna up once, since the satellite stays in the same position to the Earth at all times.

The entire package is available from Martelec Communication Systems on 0420 82752.

Speakers' corner

Q **I would like to connect my Amiga up to a better speaker system than is possible via my TV. Is there anything suitable out there?**

A For one thing, you can connect your Amiga directly to your HiFi system and hear it in glorious stereo, as it was intended. Alternatively, there are a number of dedicated amplifier/speaker packages available, including Zye-Fi which costs around £40 and should be available from your local dealer.

In the net

Q **Is there any way I can connect my Amiga up to our university's Ethernet network?**

A Commodore produces a card that fits an A1500 or above for just this purpose. It's called the A2065 and costs around £250. In addition to this you'll need some driver software for the NFS-TCP/IP protocol. This will cost you a further £100. Of course, you do have permission to access your university's net' don't you?

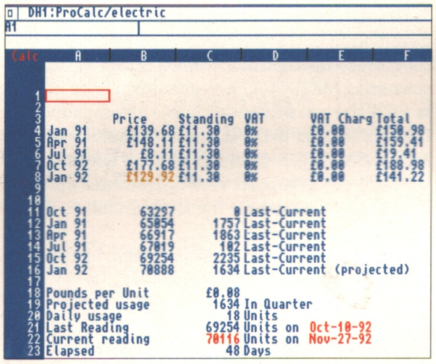
Fractally correct

Q **I want to get into the world of fractals. Are there any good books available that can tell me all about it?**

A Sigma Press has released a brand new book on fractals for the Amiga. By Conrad Bessant, it's called *Computers And Chaos: Amiga Edition* and costs £14.95.

SPREAD ALERT!

Warning! Warning! Information alert! We help you to calculate the best way to the most from your figures with this selection of fiendishly probing questions and brilliantly incisive answers...



***Professional Calc* from Gold Disk is the best spreadsheet for the Amiga, but it costs £150.**

Take your pick

Q **What is the best Amiga spreadsheet?**

A As with most things in life, if you want the best you have to pay a bit more for it. If you've got £150 spare then you can afford the best Amiga spreadsheet, *Professional Calc* from Gold Disk. The program incorporates every feature you're likely to need (along with many others you'll never use).

ProCalc is remarkably quick and utilises 125 functions ranging from cut, copy and paste to formulae computation. It makes full use of the Amiga's graphics and includes a handy charting module which is simplicity itself to use. If you can't run to that kind of money then *Mini Office* (£69.95, from Europress) features a spreadsheet word processor and a database as well. The spreadsheet isn't the most comprehensive, but it does the job. Other recommended programs include *Advantage* (£102, Gold Disk); *K-Spread 4* (£99.95, Kuma Computers) and *MaxiPlan 4* ((£129, The Disk company).

Slow reactions

Q **Why does my spreadsheet take so long to update?**

A You may just have a slow program that can't cope with all your data. The larger your spreadsheet, then the slower your Amiga's response time. If you want to speed it up, try streamlining your formulae. Do this by either utilising the built-in functions or by using concise formulae that express ranges rather than individual cells.

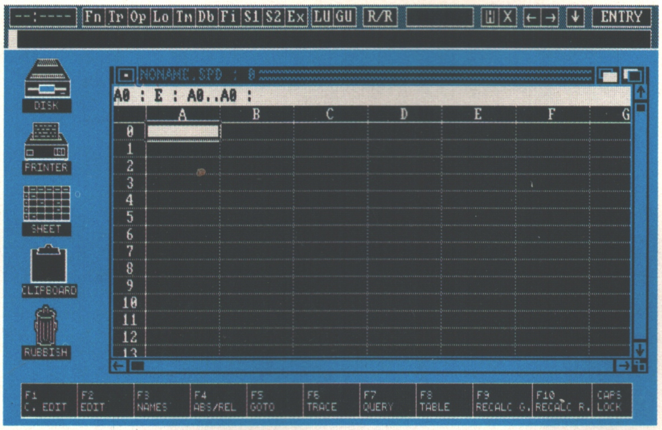
Another option is to switch off the Update Data or Recalculate command. This will mean that rather than updating formulae results every time you change the value of a cell, the program will only recalculate when you instruct it do so. If you've got a large database then recalculation takes up a lot of processor time, so switching it off can save you a lot of waiting around.

Lotus power

Q **What is Lotus compatibility and why do I need it?**

A The most popular business machine is the PC compatible and the most popular spreadsheet on the PC is *Lotus 1-2-3*. Due to this program's popularity, the vast majority of spreadsheets that followed it boasted *Lotus* compatibility in order to try to snatch a bit of this lucrative market.

In general the only Amiga spreadsheets worth considering are *Lotus* compatible. If you want to transport data between an office PC and your Amiga at home then you will need a *Lotus* compatible program.



***K-Spread 4* is a powerful spreadsheet program, but *Amiga Format* reviewers have been less than convinced by its graphing capabilities.**

High interest

Q **How can I make all this spreadsheet data look more interesting?**

A Yes, row after row of numbers isn't the most thrilling sight in the world is it? However, the vast majority of spreadsheets come with a graphing function that enables you to quickly and easily create bar, pie and scatter graphs of your data.

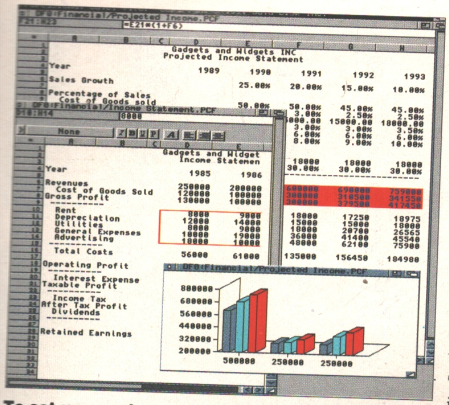
If you wanted a graphical representation of how increasing gas bills were biting into your cash flow, the first thing to do is decide how many months you want the bar graph to show. In order to graph these figures they need to be in one row. Now click and hold the mouse on the data on the far left and drag the mouse to the last figure you want to graph. This should highlight the data. Now click on the graphing function at the top of your spreadsheet. The program should now ask you to name the two axes and choose the type of graph you want.

What is what if?

Q **What is a "What if..." calculation?**

A This is one of the key features of a spreadsheet program. The idea is that after you've entered all you data, you can experiment with the values on the sheet to see what the overall outcome will be. This is the kind of operation that has proved to be one of the spreadsheet's strongest features.

Let's say that you've got all your household expenses tabulated nicely in the form of a spreadsheet. On your sheet you've got things like mortgage repayments, poll tax, bills, car maintenance costs, TV licence and savings funds all drawing from your salary. Now let's imagine that we had an incompetent government who put us into



To set up your home accounts or business spreadsheet follow the steps in Account me in (below).

the ERM, suffered a huge run on the gold reserves due to city currency speculation, pulled out of the ERM and that interest rates changed as a result.

You could try tweaking the percentage figure for your mortgage repayments and this would show up in the overall figure (how much money you've got to live on) at the end of the spreadsheet. This kind of process could be repeated for any of your other outgoings. And that's what "what if…" calculations are all about.

Account me in

Q I want to set-up a rudimentary home accounts spreadsheet. How do I do it?

A Right, first of all you've got to figure out what your income and your outgoings are. That means sitting down and working out all your expenses, be they obvious things such as quarterly bills or the not so obvious things like petrol costs. Then figure out what your income is. In most cases this will simply be your weekly/monthly pay packet, but you might also be accruing some interest on your savings/shares. Now, lay out the sheet. Starting at cell B1 and moving across the page through the '1' cells enter the months of the year.

Next, starting in cell A2 enter all your outgoings moving down the page through the 'A' cells until you've entered all those expenses. Now leave a gap of two cells and enter separate cells for any interest you're drawing from a savings account or for things such as child benefit. Enter your total income each month in the last 'A' cell.

You've now set up all the labels for.the sheet. At this point check that you've included everything and then to save the sheet. You can now start entering data. Fill in all the easy cells for the previous months, starting with the cells that need no calculation such as the cost of a bill. To add up the outgoings click in the cell immediately after the one where all your outgoings are listed and type in `Total Outgoings` and then click on the cell to the immediate right of this. It's now formula time.

Most spreadsheets have a simple function for adding up a range of cells. This will be something like `D2++D9` or `D2..D9` or `D2 plus D9`. Have a look in your spreadsheet's manual and find out which convention you need to use and then (if your sheet uses the ++ convention) enter `B2++Bx` where `x` is the number of the last outgoings cell; unless you've got a serious amount of debt it will be something like cell `B20`.

Next, enter your income into the lower B cells. We've now got to do a similar range addition on the incomings. So, in the cell immediately after your last incoming cell enter `Total Income`. In the cell to the right of this enter `Bx++By` where `x` is the first incomes cell in the `B` column and y is the last.

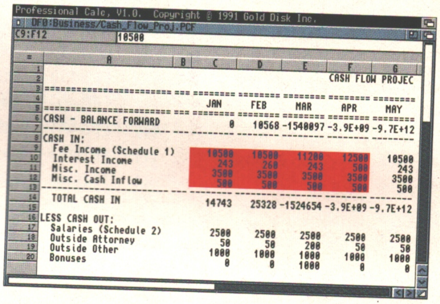
Now for the final entry. In the `A` column, a couple of cells below where your Total Income entry is, enter `Total Cash`. Then move right one cell and enter `Bz-Bv` where `Bv` is the cell containing the total outgoings and where `Bz` is the cell containing the total income. This last cell should tell you how much cash you do or don't have spare. You can now carry on doing this for each month and the program will give you a good idea of how your cash flow fluctuates during the year. You could save yourself a lot of this grief by getting hold of *Home Accounts 2*, a specialist database cum spreadsheet program for household budgets. that got an ***Amiga Format*** rating of 79 per cent in issue 30.

We mean business

Q I've got a small business how can I do cash-flow analysis with a spreadsheet?

A You'd set this up in pretty much the same way as you would for the household spreadsheet detailed above.

Obviously, you'd have to include entries that wouldn't feature in a household budget, such as salaries, national insurance, company tax, and business rates, and income could include export payments and interest on investments. However, the process and the benefits are exactly the same.



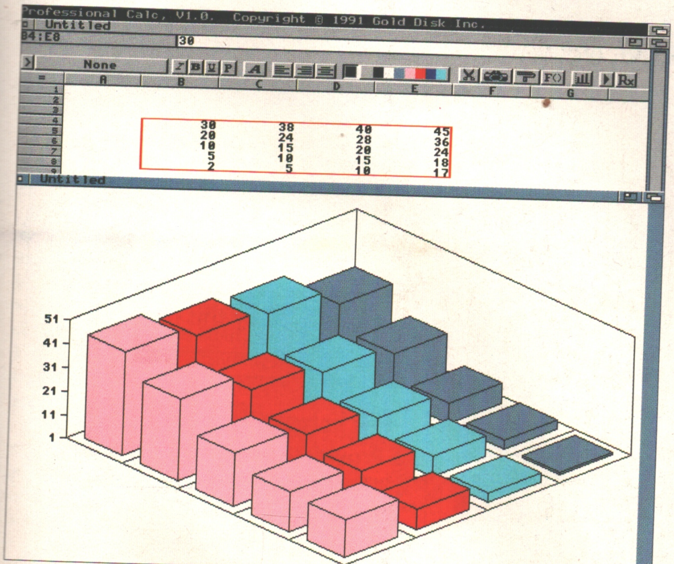
If you are really serious about keeping track of your cash a spreadsheet program is essential.

Taxing question

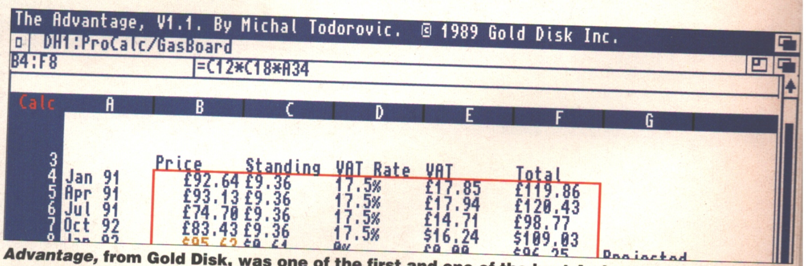
Q Just what is the best method of adding VAT to a cell?

A As we go to press, the Value Added Tax rate is 17.5 per cent. So adding VAT to a cell's figure is a simple case of adding on a percentage.

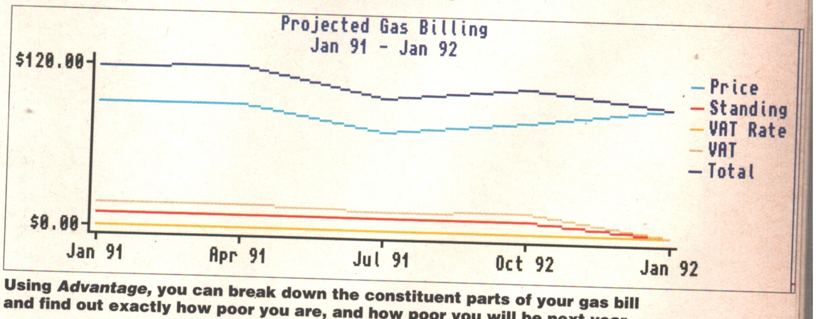
Depending upon how sophisticated your spreadsheet program is, you should be able to perform this with a built in formula that will read something like `cell B5+17.5%`. However, don't worry if you haven't got a ready-made formula because it's easy enough to enter the calculation yourself. If the data you want to add VAT to is in cell B5, then you'd enter `B5*0.175`.



Pages and pages and rows and rows of figures may be essential but they sure ain't pretty. This *ProCalc* graph on the other hand is a visual treat.



Advantage, from Gold Disk, was one of the first and one of the best Amiga spreadsheet programs, and is still worth considering.



Using _Advantage_, you can break down the constituent parts of your gas bill and find out exactly how poor you are, and how poor you will be next year.

FREE P.D. FOR LIFE

THIS MONTHS FREE P.D. AVAILABLE UNTIL MAY 31

FPD400	Assasins 42	(+)	FPD425	Messy Sid	(+)1200	FPD450	Amigadeus Classical	(+)1200	FPD475	WW2 Aircraft Clip	(+)1200
FPD401	Assasins 43	(+)	FPD426	North C1.3	(+)1200	FPD451	D-Mob Music 3	(+)	FPD476	Business Clip	(+)1200
FPD402	Assasins 44	(+)	FPD427	Pascal Compiler	(+)1200	FPD452	Digital Debussy	(+)1200	FPD477	Office Clip	(+)1200
FPD403	Assasins 45	(+)	FPD428	Print Studio v1.25	(+)1200	FPD453	Maniacs of noise	(+)	FPD478	Accents and Flashes	(+)1200
FPD404	Act of War	(+) 1200	FPD429	Superkillers	(+)	FPD454	Nightbreed Music	(+)1200	FPD479	Artic Woodcuts	(+)1200
FPD405	Hell Zone	(+)	FPD430	Land Builder	(+)1200	FPD455	Hardline Music	(+)1200	FPD480	Olympic Clip Art	(+)1200
FPD406	Atic Atac	(+)1200	FPD431	Mobed	(+)1200	FPD456	Pulse	(+)1200	FPD481	Virus Z	(+)1200
FPD407	Dragons cave	(+)1200	FPD432	PC Task	(+)1200	FPD457	Vine G-rave	(+)1200	FPD482	Bombjacky	(+)
FPD408	Return to Earth	(+)1200	FPD433	Perm Check Plus	1200	FPD458	Octarock 3D	(+)1200	FPD483	Balders Grove	(+)1200
FPD409	Total War	(+)1200	FPD434	Race Rater	(+)1200	FPD459	Advance Ham	(+)1200	FPD484	Demon Download	(+)
FPD410	Raid III	(+)1200	FPD435	Lyapunov	(+)1200	FPD460	N w dynamic Ham	(+)	FPD485	A Taste of Uaia	(+)
FPD411	Top Secret	(+)	FPD436	Proteus BBS	(+)1200	FPD461	Fractalgen	(+)	FPD486	Hardly an original	(+)
FPD412	Storyland 2	(+)	FPD437	Walker vs Helicopter	(+)1200	FPD462	Dynamic Hires 2	(+)	FPD487	Absolute Inebriation	(+)1200
FPD413	3D Games	(+)1200	FPD438	The Juggler	(+)1200	FPD463	VGA Pictures	(+)	FPD488	Absolute Inebriation	(+)1200
FPD414	Amiga Beginner	(+)1200	FPD439	Batman vs Joker	(+)1200	FPD464	MED 3.2	(+)1200	FPD489	Kurve 2.001 Fish 778	(+)
FPD415	Maths Drill	(+)	FPD440	Dolphin Dreams	(+)1200	FPD465	MIDI Disk	(+)	FPD490	Nickprefs Fish	(+)
FPD416	Clerk	(+)	FPD441	Red Lotus	(+)1200	FPD466	Sound Trecker 2.6	(+)1200	FPD491	Extra Commands Fish 774	(+)
FPD417	Desktop Publisher	(+)	FPD442	Star Trek	(+)1200	FPD467	Octamed V1	(+)	FPD492	Cinemorph	(+)1200 1mb
FPD418	Q.E.D.	(+)	FPD443	Space Probe	(+)1200	FPD468	IFF Samples	(+)1200	FPD493	Desert doo	(+)
FPD419	Textplus v3.00	(+)	FPD444	At the movies	(+)1200 2mb	FPD469	Amos Updater	(+)1200	FPD494	Twilightzone fish 782	(+)
FPD420	Little Office	(+)	FPD445	Gulf War	(+)1200 2mb	FPD470	Fruit Machine	(+)1200	FPD495	Viewtek Fish 787	(+)
FPD421	ASI Boot Utilities	(+)1200	FPD446	Sweet Revenge	(+)1200 1.5mb	FPD471	Gelignite Fonts IV		FPD496	Qmouse Fish 789	(+)
FPD422	D-Copy	(+)1200	FPD447	Chaos Rock	(+)	FPD472	V Morph	(+)1200	FPD497	Cybernetix	(+)
FPD423	Exile Fonts	(+)	FPD448	Dark Demon	(+)1200	FPD473	IMP Walker	(+)1200	FPD498	Wordpower	(+)1200
FPD424	Icons	(+)1200	FPD449	Desire Menace	(+)1200	FPD474	Saturn Orbit	(+)1200	FPD499	Jpeg Compression	(+)1200

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BASE

THE FACTS

What's the best way to organise my fields? What is a filter? Which is the best Amiga database for you? The next three pages should give you more than a base-ic idea of the genre...

Getting organised

Q **I want to catalogue my vast and impressive collection of CDs. What is the best way of organising the fields?**

A One of the most important things to remember when creating a database is to work out exactly what kind of information you want to include. It's very easy to get carried away with the whole enterprise and include all sorts of superfluous data that takes eons to input and then never gets looked at. It's also worth noting that the fewer fields there are in your database, the quicker you will be able to access the information.

When you're creating the database, work out exactly what you want to get out of it. Are you simply going to search according to artist or record title or are you more likely to search according to the catalogue number?

Perhaps you'd like to include an entry for the type of music on the CD (Techno, Grunge etc). The advantage of this type of field entry is that you can do sophisticated searches such as retrieving every Techno CD you own that was made before 1990.

Let's say that you want a fairly sophisticated database that includes artist name, catalogue number, type of music, release date and a complete track listing. Although this database will take a while to actually get up and running, the advantage is that you'll be able to perform searches on elusive tracks. If you were really dedicated you could include a track length field. This would make taping your CDs (for personal backup use only of course) much easier. Let's say you've got three minutes spare at the end of a tape which is primarily rock music. If you consulted your database it could give you a complete list of three-minute Grunge tracks for possible inclusion.

Fixed formats

Q **What's a Fixed Format database?**

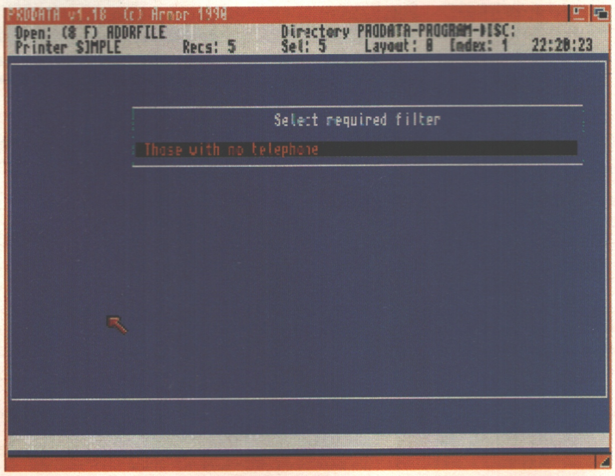
A This variety of database presents record information in a defined manner. This means that you won't be able to change the format or layout of the fields in your records. While this means that Fixed Format databases are extremely easy to use they are also very inflexible and in most cases are best avoided.

Data transfer

Q **I've got a database of addresses that I want to print on envelopes. My database won't do this but my word processor will. How do I transfer the data?**

A Practically all databases include import and export functions that enable you to transform database files into other textual formats. The *Prodata* database that was on the Coverdisk of ***Amiga Format*** issue 43, enables you to export data in an ASCII format. This is a most useful option because every text editor or word processor has the ability to read ASCII files.

The process works like this. You load your database into memory and then select either Export or Save as.. from the File menu. Select the ASCII option and the appropriate disk or hard drive partition. The data will now be saved out, though this can sometimes take a little while. Now quit from your database and load up your word processor. From the File menu click on either Load or if possible Load ASCII. The database data will be imported into memory and you can now print your envelopes.



***Prodata* is exemplary of the kind of dull screens that most databases use. But for once, functionality is far more important than good looks.**

Lost&found

Q **When I use *Prodata* it loses some of my records. This usually happens after a search. What has happened to those records and how can I get them back?**

Continued on page 102

A Whenever you perform a search using *Prodata*, it flags records as On and Off. What this means is that as it sifts through all the data it analyses each card, checking your search criteria against it. If there is nothing of use on the card then it switches that card off.

This means that if you flick through your cards after a search you'll find some of them are missing. In order to get those cards back all you need to do is hit the Select All Records option from the main menu. This flags all the cards on and you can now browse through them as you would normally.

Dark entries

Q I'm only allowed 2,000 entries in my database. What happens if I need to enter more records?

A The best way to get around this problem is to plan ahead. If you suspect that you might need more than the maximum number of records in your database then you should further refine your records, putting similar information into the same field. For instance, if you are storing addresses then why not use two separate files for letters A to L and another for M to Z. The disadvantage of this is that you will have to perform all searches twice, once on each file. What is probably a better idea is to invest in a better database which can cope with more records. It's only the older programs which have limits on the number of records and you'll find that the more recent packages limit you only because of memory requirements, meaning that if you want to include more records you'll just have to expand your Amiga's memory.

Relations & friends

Q What is a relational database and is it any better than a normal database?

A Relational databases use a completely different format for storing and retrieving data. Essentially they use several different databases, all of which are linked together.

The top database acts as a kind of index, so that if information is accessed on it, it calls up the linked information contained within the other databases. For example, if you had your CD collection in a database, the top segment would consist of the artist's name and other relational segments would consist of the type of music or the catalogue number. Relational databases are no better than any other kind of database, they suffer from the same memory and speed problems.

Long time coming

Q Why does it take so long for my database to sort its records?

A Well it's all relative isn't it. The more data and/or fields there are in your database and the more strict your sort criteria, the longer it all takes. What you have to bear in mind is that sorting is a tricky process.

Databases use a number of clever sorting functions such as the bubble sort which sift data to roughly the right position and then sort on a smaller chunk. The next time you're cursing your Amiga for taking its time, remember what it's doing, checking every card with every other card in your database until it finds its neighbour.

Follow the example of the ***Amiga Format Special*** crew and make yourself a nice cup of tea while it's sorting.

filofax... not!

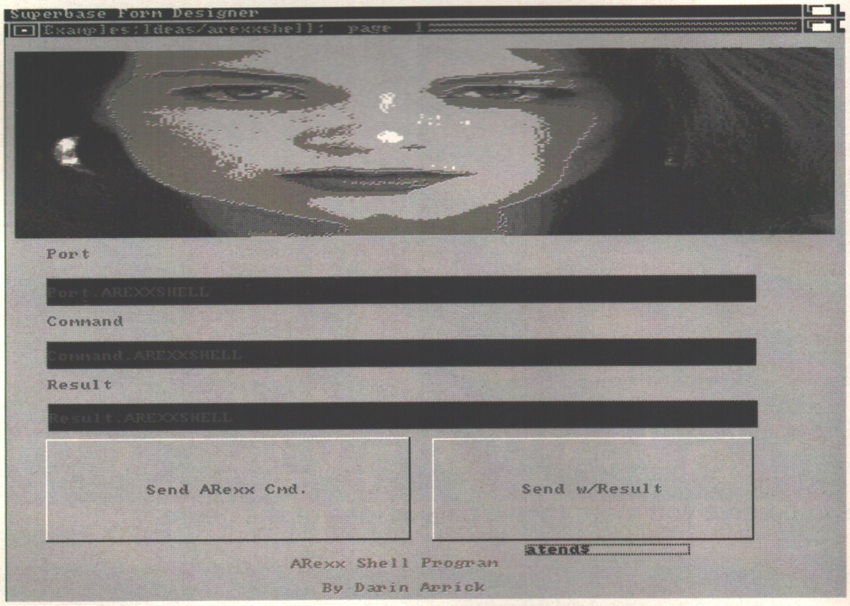
Q Is a computerised database any better than my trusty filofax?

A Why is a microwave better than a candle? Why are AC Milan better than Bristol Rovers? Admittedly filofaxes are very portable pieces of kit, but they're not terribly good at storing thousands of addresses are they? And besides, when was the last time you heard about someone losing their Amiga and all their database files. But seriously, databases can sort, filter, print out and otherwise keep all your information safe.

Filter or instant?

Q What is a filter?

A In database terms, a filter is an instruction for selecting a certain kind of record. For instance, if you were filtering your addresses, you could flag all those entries within a certain county. This differs



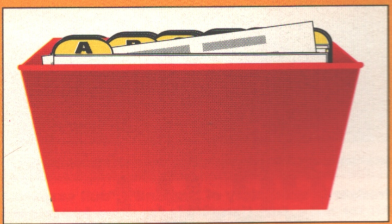
Try doing this with a card index file! This is *Superbase Pro* in full swing. It's interactive, multimedial, open to your needs, demands and prerequisites. Even getting the data on-board isn't the usual grind.

Getting back to data-basics...

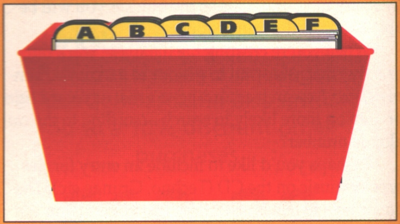
Amiga databases work, at their most basic, in the same way as traditional card index boxes. Here you can see one 'record' comprising several 'fields'.

Name: ***BEN-HUR*** Date: ***1959*** Colour or ~~B/W~~
Director: ***William wyler*** Duration: ***217 mins***
Country of origin: ***United States***
Stars: ***Charlton Heston, Jack Hawkins, Haya Haraeet, Stephen Boyd,Hugh Griffith***
Plot: ***Heston falls out with his mate. Works out in a galley for a bit. Hawkins sees his muscles and adopts him. Heston seeks revenge on Boyd and gets him out of the bath, oh and there's a chariot race.***

Searching for individual records is easy enough, look in alphabetical order. But any searches that are more complex than that are time-consuming horrors.



For example, if you wanted to x-ref the number of 'A' records with the same addresses as 'B', 'D' and 'Xs', you have to seach each card manually: nightmare!



from a search in that a filter turns up lots of records rather than just one. With a database such as *Prodata* it's possible to set-up predefined filter formulas for oft-used searches. Businesses use this kind of function to search for anyone who hasn't paid their bill.

Index explanation

Q What is an index file?

A This is a function that enables the user to access records within a database without having to search through each one.

The index file is set-up around one of the fields, such as surname. An index check is far quicker than a search on the full database.

No good layout

Q What's the layout function?

A This is the way your database physically looks. By modifying the layout you can position fields where you want them for ease of entry or suitability for print-out. The layout also determines the order in which you cycle through the individual fields, for instance, from first name to surname and then to telephone number. If there's a field that isn't necessarily going to have data in it from every record then it's usual practice to place this at the end of a form. That way you don't have to cycle through it every time you make an entry into the database.

Hard disk?

Q Is it really necessary to have a hard disk in order to use a database?

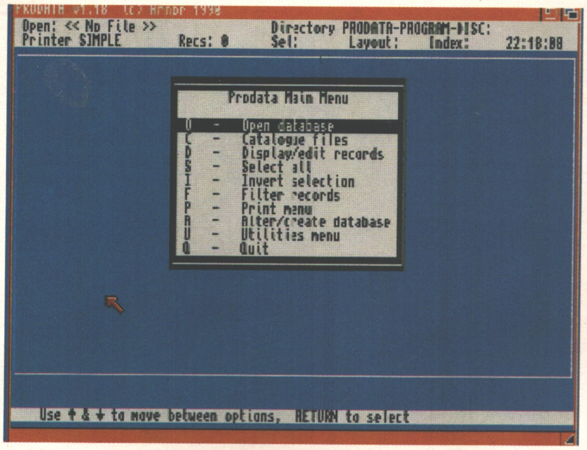
A It depends entirely on how many records your database contains. If you're simply using it for keeping a small (a few hundred) addresses then the speed of access isn't likely to be a problem. However, if you're serious about your data and/or you're going to be storing lots of records then a hard disk is well worth investing in. Storing a database on a hard disk has great advantages. Data can be accessed far more rapidly than with a floppy disk. Some databases don't actually store that much data in RAM, they use the disk as a kind of extended memory. Therefore, if you use a floppy disk you'll find that your Amiga is constantly accessing the floppy, all of which is a bit slow. Standard floppy disks can also only store about 880K of information which isn't much use for large scale databases. Basically, if you're only storing the names and addresses of your golfing buddies then a floppy disk is fine (unless you're Nick Faldo of course).

All together now... "Japan World is one of the finest examples of a CDTV/CD-ROM-based database".

Simply the best

Q Which is the best Amiga database?

A Depends how liquid your cash-flow is. The best sub-£100 database is *Prodata* which ***Amiga Format*** gave away on the Coverdisk of issue 43. This includes sophisticated sorting and indexing features and is perfectly suitable for the vast majority of applications. However, if you're a bit more serious about your data then your best bet is *Superbase Professional 4*. This is far and away the best database program reviewed by ***Amiga Format***, although it's also one of the most expensive (£249.95 including VAT from Meridian Distribution 081-543 3500). The program is capable of any data storage application, due mainly to the inclusion of a programming language within it. This means that you can tailor the program to do whatever you want.



Flexibility is the order of the day with the Amiga. You can sort and re-sort records to your specification and to your heart's content.

Ready-mades

Q Are there are any databases which come with information already stored in them?

A There are a few, but they're all on CDTV. One the best examples of this is the *Gardenfax* series. This selection of databases includes information about different kinds of plant life. It enables you to enter a series of clauses based on planting/location conditions and the program chooses a few appropriate plants that could thrive under those conditions. *The Hutchinson's Encyclopaedia* contains hundreds of entries including the odd digitised picture and/or sampled sound. Unfortunately, the program isn't the most flexible around, as you can only search according to entry, there's no real selection criteria. Considering that the program costs £49, it's not much good.

Getting on-line

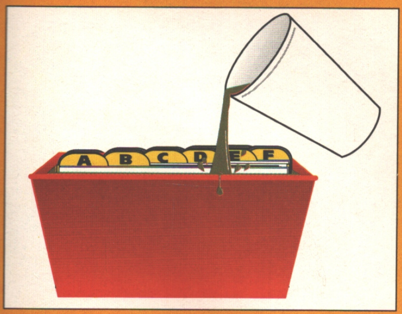
Q What exactly are on-line databases and how could one be of use to me?

A On-line databases are actually large computers that can be accessed by anyone with an Amiga, a modem and a phone-line. One of the best known on-line databases is the huge CompuServe network that is based in America.

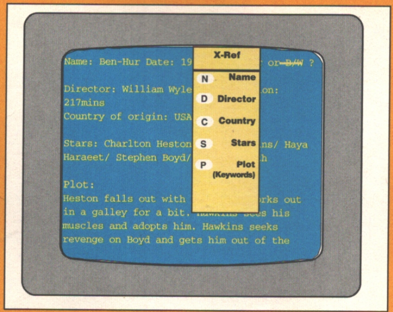
By connecting to CompuServe you can access a huge pool of information, download graphic files of works of art, read news from any one of 50 American or European newspapers, find out an American phone number, download a new Amiga PD program or even order a car.

Other examples of on-line databases include the Yellow Pages, DVLC and the British Library's own, voluminous database.

Then, once you've got everything in order, along comes a catacylsm. Have you ever tried making back-ups of card indexes?



An Amiga-based database on the other hand, offers peace of mind, and far greater speed and flexibility.



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VOYAGE OF DISKOVERY

There is no point having an Amiga unless you can store data on it. This is where disks and drives come in awfully handy. Here we give you the hard facts, and some floppy ones as well

Disk or disc?

Q To settle a long-running argument... is it 'disk' or 'disc'?

A We have always taken it as computer 'disk' which is short for diskette. None of the dictionaries seem to make any distinction between 'disk' and 'disc' – both come from the Greek Diskos. It simply appears that to differentiate their craft from the world of disc-jockies, discus throwers and *Desert Island Discs*, the manufacturers of computer data storage media decided to opt for the 'k' spelling. When we refer to Compact Discs, we have to use the 'c' spelling because this is how the copyright holder, Philips, spells the name.

Format facts

Q What happens when I format a disk?

A We'll deal with floppy disks first. When you buy 3.5-inch disks, all you get are a number of plastic and Mylar (a compound material that was also used as the outer cover for Madonna's Sex book) objects that can be used to store data on many different computer formats. The Atari ST, Apple Macintosh and IBM PCs all use 3.5-inch disks, but in order for your Amiga to be able to use a disk you have to format it. The Amiga has been designed so that its disk drive(s) read floppy disks in a very specific way – it looks for disk Sectors and Tracks in specific places, and if these are not where it expects them to be, it throws up a disk error.

The formatting process ensures that the disk (which was previously blank, having no Sectors or Tracks) has everything in the right place for your Amiga disk drive to access.

Highs and lows

Q What does High Density and Low Density mean?

A These terms relate to the amount of data that can be stored on different kinds of floppy disks. High Density disks are fast becoming the standard for business computing, so you can expect to see them filter down to the Amiga. In fact, several companies are already working on built-in HD floppy disk drives for the A1200. High Density disks can hold up to 1.8Mb of information compared to 880K on standard Amiga floppy disks.

However, most Amigas are unable to read High Density disks – or at least disks that have been formatted to High Density. You will have to get a High Density disk drive in order to make full use of the storage capacity. You can tell a High Density disk because on the back at the right there is a small hole that you can see clear through.

IDE and seek

Q What are SCSI and IDE?

A SCSI (which stands for Small Computer System Interface) and IDE (Intelligent Drive Electronics) are two industry standards for the way in which peripheral devices are used across the computing world. The one mistake you don't want to

Continued on page 106

FLOPPY FACTS

Floppy disks – we just can't get enough of them. But are they as sturdy as they seem...?

1) A floppy disk is split into nine basic elements: these are:

2) The hard outer casing. This is predominantly blue.

3) The magnetic media (made of Mylar). This is the floppy inner section of the disk itself. It is fragile and should not be taken out of its hard outer casing.

4) The hard metal centre in the middle of the floppy disk.

5) The spindle hole. This enables the disk to revolve on its axis.

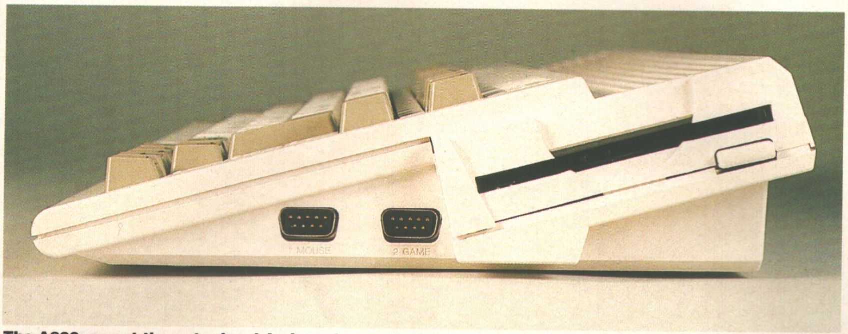
6) The index hole. This acts as the timing device. The disk mechanism uses this hole to centre itself, set up the timing for the read/write operations, and it also enables it to judge where to begin the formatting procedure. It also acts as a point zero when looking for tracks and sectors.

7) Tracks. These are the ruts that run around the floppy magnetic media in which data is stored.

8) Sectors. These are cut across the floppy disk as another reference for data storage. The crossing of tracks with sectors gives...

9) Blocks. Tracks, Sectors and Blocks enable the Amiga to store and then referenced as Track Number, Sector Number and Block Number. For example, the first byte of your *Deluxe Paint* masterpiece could be stored at address Block03, Track10, Sector21. This information is held...

10) In the Directory. This is one of the most important areas of the disk and usually takes up the first Track of the disk. In it is stored all the information the Amiga needs to allocate space to data. You can get to a point where there is plenty of space on a disk, but the directory is full. In this event you will get a disk-full message.



The A600: as yet the entry-level Amigas do not come replete with high density disk drives built-in. This means investing in an external HDFDD (High Density Floppy Disk Drive... phew!) if you want to make use of the 1.4Mb floppy disks that are becoming standard issue in computer world.

make is to think that SCSI and IDE are hard disks. They aren't. SCSI and IDE and merely the standards that govern how peripherals such as hard disks are interfaced (connected and controlled) to the main system hardware. A hard disk is a hard disk is a hard disk (a large chunk of metal and plastic).

SCSI is based on the SASI standard (Shuggart Associates System Interface) developed in 1979. A versatile standard, SCSI controls more than simply disk drives, and the way in which they interface with the Amiga, but it is limited by the fact that when you buy a SCSI-based computer, every other device such as hard drives, floppy drives or printers, must come with their own SCSI controllers. This adds to the expense. With IDE however, once you have the basic IDE electronics aboard your machine, that's it, you can then go out and buy the hard disk

Hard Disk Delights

They are becoming standard issue for Amiga users, there are plenty of them available, they come in various sizes, and they are probably the most useful devices you can currently get for your Amiga.

Just to get you on your way with the basics of hard disk use, here we present ten useful, bit-sized gobbets of hard disk-related information.

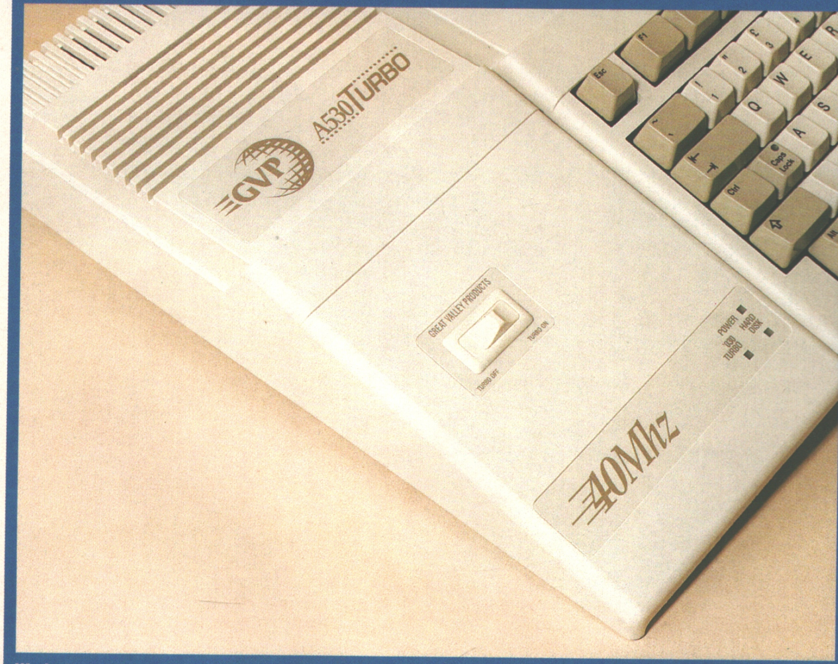
1) Yes, you can still get high quality hard disks for the A500 and A500 Plus. By far the best come from American Amiga-giant, Great Valley Products.

The GVP A530 triples as a hard disk, an accelerator and a RAM upgrade. It fits to the edge connector of the A500 and A500 Plus. Starting price for the A530 is £749 – this rises depending on the amount of RAM and the amount of storage you want onboard. Another GVP drive is the HD8 Plus. This comes with the highly useful Game Switch that enables you to boot your Amiga from floppy disk (many games are self-booting and would conflict with the HD8 Plus).

The HD8 Plus comes with a 3.5-inch disk that enables you to store up to a massive 213Mb of data. Usefully, it also comes with a SCSI (Small Computer System Interface) thru'-port to enable you to connect other devices to your Amiga. Prices start at £299 for a 42Mb version. For more information, contact Silica on 081-309 1111.

Other hard disks available to the A500 and A500 Plus owners include the ICD Novia series (from £279). The 40i for example fits internally to your Amiga, which means some technical mucking around, is reasonably fast, and for £279 is far from being over-priced (contact Power Computing on 0234 841882).

There's also the Reference 100 from Evesham Micros (0386 765500). Starting at £229 the Reference comes with a separate power supply (highly recommended) and the option to include up to 4Mb of RAM.



We bet you were expecting to see a tiny, 2.5-inch, black and silver IDE drive in this picture box because those types of drive are the order of the day having featured in the A1200, A600 and A4000, but don't forget the older SCSI-compatible drives such as this classic GVP A530 – Gord bless it!

2) You need to be armed with Kickstart 1.3 or up if you want to boot from hard disk.

3) Be sure to get the right hard disk for your machine. If you have an A600 or A1200 you will need IDE (Intelligent Drive Electronics) compatible, 2.5-inch drives. If you have an A500 or A500 Plus you will need SCSI (Small Computer System Interface) compatible disks.

4) Always make back-ups of important data held on a hard disk. Back up to floppy (or even video tape) and keep the back-ups locked away. Do this at least once a month.

5) Fitting an internal hard disk will invalidate your warranty.

6) If your hard disk is not the auto-parking type, be sure to software park it before switching it off, and before moving it.

7) A hard disk spins at roughly 3,000 revolutions per minute.

8) Always have an up-to-date virus checker installed on your hard disk. Update this every six months.

9) Be organised. It is frustrating in the extreme having 105Mb of data and not being able to find any of it.

10) If you have a hard disk with more than 80Mb of storage, partitioning to DH0 and DH1 is a good idea. This way you can retain a clearly defined area for your 'serious' software as well as one for the more leisurely assortment.

with no other electronics built-in. This is then connected to the Amiga via the IDE electronics. This means that IDE-compatible drives are generally less expensive than SCSI variants.

The only downside is the fact that you can connect a greater number of drives to one computer using SCSI (they all have their own controllers) than you can using IDE (one controller inside the Amiga). But considering that most people can only afford a single hard disk this isn't going to matter that much.

Bits and PCs

Q Can my Amiga read and make use of PC disks?

A Yes and no. Certainly your Amiga can read text and data files from PC disks, although you will need some specialised software for this. We recommend that you use *CrossDOS* which made a starring appearance on the Coverdisk of ***Amiga Format*** issue 40 (November 1992).

This software will not turn your Amiga into a PC, but it will enable your machine to copy the data from (and to) PC-formatted disks. As for making use of PC disks, this is tricky one. Although you can transfer data between machine formats, usually in ASCII format (see the Beginners' section starting on page 8 for an explanation of this term), you can't make use of programs written for the IBM PC and compatibles. This is because the code used to write the programs is different to that use to write Amiga programs (IBMs use Intel-based code, and the Amiga uses code based on Motorola's 68000-series processors).

Hard decision

Q What's the point of having a hard disk?

A When the Amiga was considered to be merely a glorified games machine (way back in time) there was probably no use in having a hard disk. Nowadays, however, with programs such as *Imagine*, *AdPro*, *Wordworth*, *Final Copy*, and *The Secret of Monkey Island*, making the pace on the Amiga, a hard disk is becoming an absolute must.

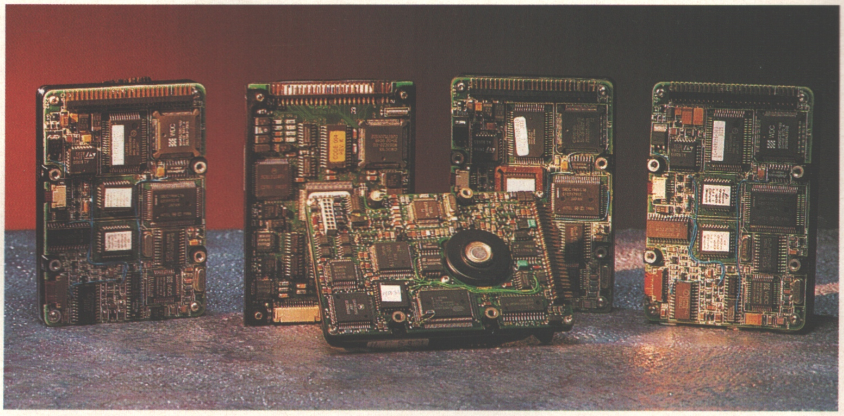
A program such as *Final Copy* has moved far beyond the realms of a basic word processor, now we classify it as a word publisher, and the number of disks it comes in proves this. Equally, using the program can be a pain in the backside if you constantly have to disk swap – so a hard disk becomes essential.

Without a hard disk saving files using systems such as *Cinemorph*, *MorphPlus* and *OpalVision*, will present you with problems, as will saving any decent length animations in *Deluxe Paint*, or any memory-intensive tunes using *MusicX* or *Med*. A hard disk, in the long run, will save you time and a few quid on the cost of floppy after floppy.

Reading ability

Q Can a High Density drive read Low Density disks and can Low Density drives read High Density Disks?

A Yes a High Density drive can read Low Density disks, and no, Low Density Drives can't read High Density disks.



These are IDE (Intelligent Drive Electronics) hard disk drives of the 2.5-inch variety. These are compact, fast and widely available because they have featured so widely in the PC world. Sizes range from the humble (and frankly pointless) 20Mb version all the way up to the powerful 380Mb beast.

Amiga to PC

Q Can my friend's PC read Amiga disks?

A As far as we know, no. As yet the PC isn't armed with enough software to read other machine formats. Either that or the PC makers are too damned superior to want to extend the architecture of their machines to this level.

Because it's floppy

Q Why are floppy disks called floppy, and why are hard disks called hard?

A The square plastic casing of the Amiga's standard 3.5-inch floppy disks is just that; a casing. It is merely the protective skin for the delicate piece of silicon inside. This piece of silicon is circular and very thin – hence floppy. Hard disks are made from a much more resilient material and are, as the name suggests, hard.

More drive

Q What's the point of an external disk drive?

A Have you ever tried to make use of a piece of software such as *Wordworth* or a game such as *Monkey Island* with a single drive? It's a nightmare. You are constantly having to load and re-load disks for such programs to work. This is where an additional drive comes in very, very handy indeed. Frankly though, the option we would recommend right now is that you opt for a hard disk instead. The prices for these devices on the A1200 and A600 are dropping rapidly, and with the A500 and 500 Plus disappearing, add-ons such as GVPs excellent A530 drive are at a premium. Hard disks will make your life easier.

What is CD-ROM

Q What does CD-ROM stand for?

A According to Philips, the company that (along with Sony) holds the copyright to Compact Disc, CD-ROM stands for Compact Disc Read Only Memory, although you may well see it explained as Compact Disc Read Only Media. (For more information, turn to page 32).

CD store

Q Who came up with the idea for CD-ROM storage?

A The people who currently hold the world rights to Compact Disc are Philips and Sony. So we will attribute it to them.

Can I copy

Q Is it wrong to make copies of my software?

A Yes and no. In most cases 'serious' software houses will recommend that you make working copies of your programs so that if anything goes wrong, such as the dog eating the disk, you always have the originals to fall back on. Making copies to lend, sell or give to friends on the other hand, is illegal. This is software piracy.

Goodnight Irene

Q Why are we told not to put disks near to magnets, as if anyone would?

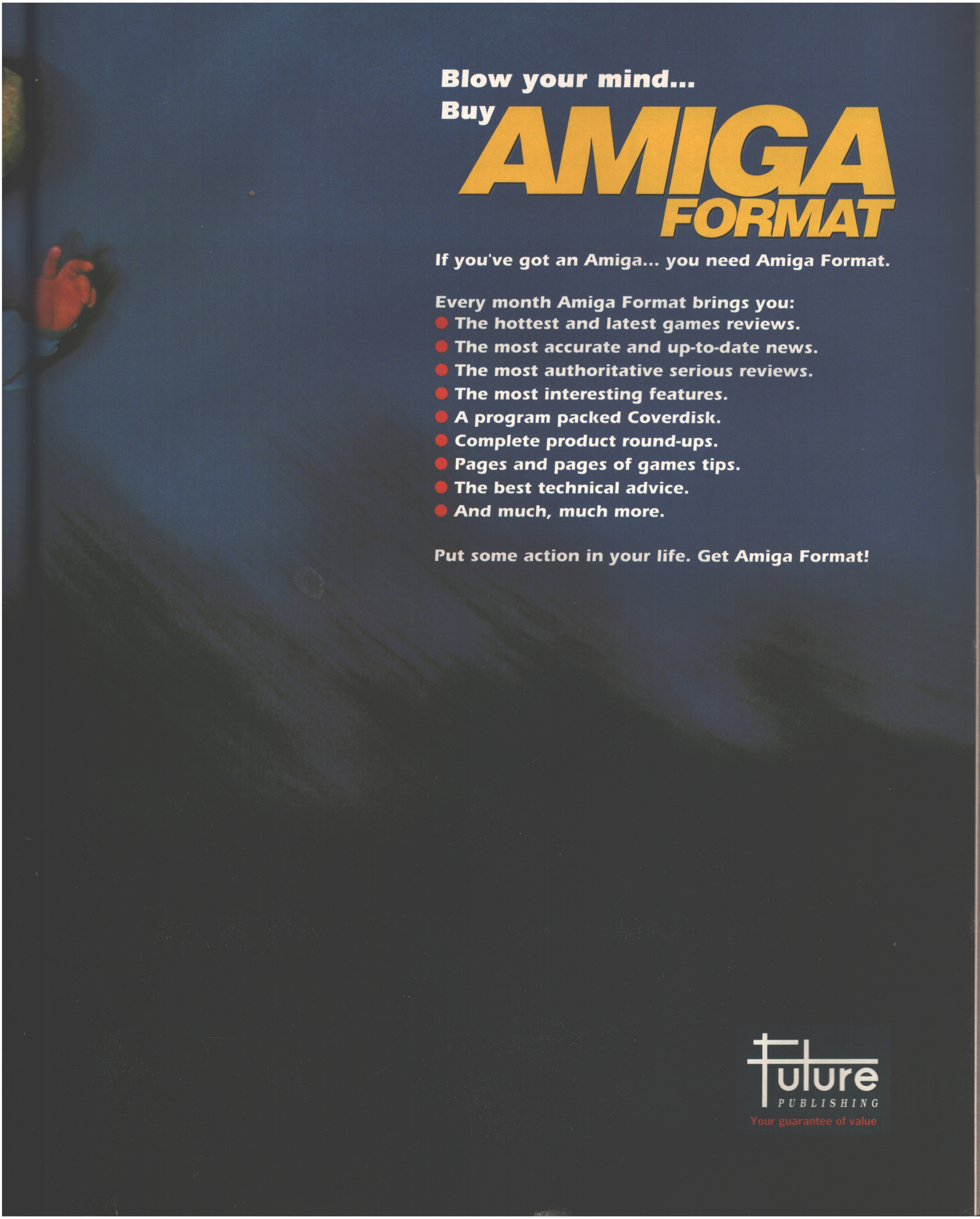
A The second part of the question is probably the most interesting. You would be amazed at the number of people who leave collections of valuable software on top of speakers that contain large magnets. The reason for not doing this is that disk and disk drives use magnetic media to store data. If another magnetic field comes into conflict with these it's Goodnight Irene! and start all over again.

Disk partition

Q How do you make a partition on a hard disk?

A Partitioning a hard disk that is able to store more than 80Mb of data is an excellent idea. By partitioning the disk you can be more organised, and better organisation means a longer life for your

Continued on page 110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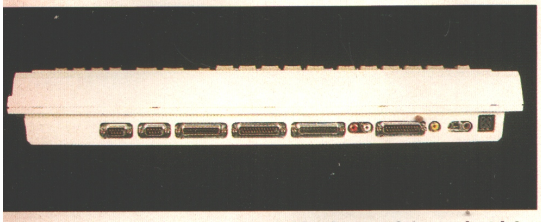


Fitting an external drive is one of the easiest jobs in the world with an Amiga. Wack it in the back.

disk. But, to the question in hand. If you are using an IDE drive for your A1200 or A600 you will need to run the *HDToolBox* program that came with your Amiga. The first thing you will notice, having been told by us that you don't have a SCSI drive but you do have an IDE drive is that the Amiga's software will tell you that you have a SCSI drive. This is simply a case of poor updating on the part of Commodore. Never mind, the software still makes sense to the Amiga and to the hard disk.

What you need to do is click on the Change Drive Type box and then click on New Drive Type. This will force the hardware to inform the software of all the relevant details. A few minutes may pass before all the information is found. Once all this has been done, you can click on Partition.

Now we come to the important bit. If you want to be able to start your Amiga directly from the hard disk – and this is one of the greatest pleasures of owning such a device because it means that you don't have to wait for the DF0 to complete its read/write operations – you must ensure that the first partition is Bootable. Now you can create decently named partitions to your heart's content. Be careful though, you can't actually partition a hard disk without ruining all the data on it.

Size of relief

Q The Amiga has 3.5-inch disks, is there anyway I can make use of 5.2-inch disks?

A No. If you have any old 5.25-inch disks with text files, the best advice is to get a friend with a PC to transfer the data to 3.5-inch disk, and then use CrossDOS to get the info on to your Amiga. Then give the old disks to your friend. If you don't know anyone with a PC, try your local library (if it hasn't been closed down) failing that try a bureau.

Mac it snappy

Q Can my Amiga read Mac disks?

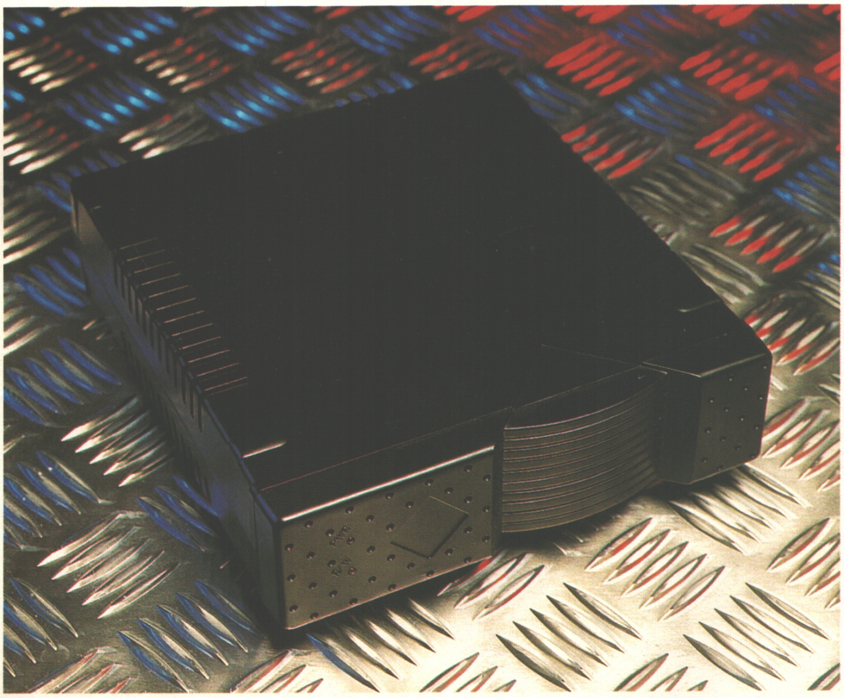
A No. But Macs can read from and write to PC disks, and Amigas can read PC disks (with *CrossDOS*).

Monkey business

Q With multiload games such as *Legends of Valour* or *The Secret of Monkey Island*, is there any way of archiving the files down to one or two disks in order to cut down on disk swapping?

A No unfortunately not. With these big games it is more than likely that all the relevant information has already been archived using the developers own system.

Unless you know some extremely clever programming tricks of your own, we would advise that, the best way to achieve quicker access and less disk swapping, is to invest in an extra disk drive or get yourself a hard disk.



Nowadays even the CDTV comes with its own hard disk drive. Why does it need one if it's got the ability to make use of 650Mb Compact Disks? Simple, have you ever tried to save data to a Compact Disc? If you have, you'll felt rather stupid because CD-format won't let you. A hard disk however, will!

Hard to swallow

Q Why are some games and programs hard disk installable while others aren't, shouldn't everything be installable to hard disk?

A Yes, everything should as far as we're concerned. But the history of the Amiga mediated against this. There are two main reason why some programs are not hard disk installable: Reason 1 is that it encourages piracy (a weak argument). Reason 2 is that historically it has always been this way (another weak argument).

Boot-iful

Q What is a Boot Sector?

A This is the area of some disks that have been formatted specifically so that they can be used to start up your machine. Boot Sectors are also known as DOS Sectors because a small element of the Amiga Disk Operating System is saved to this area. Many games are self-booting which means that you don't need to load Workbench first and then launch the program from there.

What is DH?

Q What do DH0 and DH1 stand for?

A Simple really, DH is short for Disk Hard, you can have many of these attached to your Amiga. Equally, you can also have more than one DF (Disk Floppy) attached to your Amiga.

Kodak query

Q Can I get my CDTV (or the A500's CD-ROM drive) to read Kodak's impressive new PhotoCD-compatible discs?

A Unfortunately not. But turn to page 32 for more information on CDs and CDTV.

Doctor who?

Q Why is *DiskDoctor* not on Workbench 3?

A Basically because Commodore realised that the program caused more problems than it ever helped to solve.

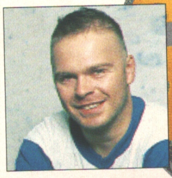
Get your back-up

Q What is the easiest way to make back-ups of my data, and is keeping back-ups really as sensible as everyone makes out?

A It certainly is sensible. For really important data it is essential. There are two ways of making back-ups: the first is the laborious process of simply copying information manually from disk to disk using Workbench or the Shell. The other is to get hold of some task-specific solutions such as X-Backup (approx £35 from various outlets) and Quarterback Tools (approx £45 from various outlets). Make sure to back up your software once a month for real safety.

AMIGA FORMAT THE INTERVIEW

***Amiga Format* editor, Marcus Dyson, answers the questions that crop up the most often in the bulging *AF* postbag**



Marcus Dyson *Amiga Format*'s editor-in-chief.

Pirates ahoy

Q What is *AF*'s stance on software piracy? Do you consider that games are too expensive?

A I definitely think that games are too expensive but I don't think that piracy is the correct response to the problem.

Although some games companies maintain that prices would drop if piracy were to stop, piracy isn't going to stop and prices aren't going to fall.

One thing's for sure, the act of piracy is short-sighted, selfish and harmful to the Amiga's potential as a games machine.

In bed with CBM?

Q You always seem to follow Commodore's line on every subject. Come on, be straight with us, you've got a deal with CBM haven't you?

A The only deal I have with Commodore is the one that puts the magazine in the box. Otherwise I get the same treatment as any other magazine or individual, and believe me at times it leaves a lot to be desired. I don't follow Commodore's line on everything, we'd have liked to have seen the A1200 with a high density drive and a DSP (Digital Signal Processing chip) for starters, but by and large I think they get it right.

Image project

Q I'm working on a college project about the effect of computers on the youth markets since 1989. Could you give me a list of all the Amiga games ever? Could you tell me how many Amigas there are? Could you tell me how your circulation impacts on the 14-22 year age group?

A If I had a pound for every student who has asked me to do their project work for them, I would have my own A4000/040 by now. The idea of a college project is that you do research. OK, so you might reply that writing to us and asking for the answers could be counted as research, it won't help you when you're in the real world.

Games for me

Q Why should I buy an A1200 when all I want to do is play games?

A If all you ever want to do is play games, then a console is arguably a better idea than an A1200. But, rather than any of the crap already available - face it the Mega Drive and the SNES are just toys - I suggest you wait for the new Amiga CD console that I confidently predict Commodore will launch before Christmas this year. It will kick the Sega and Nintendo offerings into touch. Just think though, by buying a console you are passing up the opportunity of using all the fabulous creative programs available to Amiga owners, such as *VistaPro3*, *Real 3D* and *Bars and Pipes Professional*. And all of these can be more fun, and more rewarding than any console game.

Free software?

Q What do you do with the software you review after you've reviewed it?

A I try my best to keep it all in a big cupboard in our offices. Every so often, when I'm not too busy, I get it out and have a go on it. There's a very good reason for this (we're not a load of skivers), all this practice means that when you write and ask about a piece of software, there is a better chance that one of us will be familiar with it. Of course, certain programs (and games) get more attention than others, everyone in the office is an expert on *Pinball Fantasies* for instance.

Suey! Suey!

Q Have you ever been sued by any companies? Or do you make it a policy just to say nice things about their products?

A I have, on occasion, incurred the wrath of more than a few companies but up until now we've managed to avoid any legal nastiness. I don't however do this by promising to say nice things all the time, if product is bad, I say so.

You will notice that more and more serious product (software at least) is scoring highly these days, that isn't because we're getting soft, but because serious Amiga software is really becoming amazingly good.

Other lives

Q What have things like CyberPunk and hacking actually got to do with the Amiga?

A I firmly believe that the kind of person who is intelligent enough to choose the Amiga over a console-toy or a PC, is intelligent enough to have more interests than the Amiga exclusively. I feel that there are some areas, which are peripheral but directly linked to Amiga useage, are also interesting to you. This doesn't mean that I am going to run articles on skiing and mountain-biking, even though I enjoy both. If you are the kind of person who likes playing Interphase, I think that you will probably also enjoy reading Neuromancer. Why not write in and tell us if we're right or wrong.

Amiga useage?

Q I've read that you only use Apple Macs to create the magazine. Do you do anything with Amigas at all, or is it all just a con?

A We use Apple Macs to lay out the magazine, not by choice. We are part of a big company so we have to be compatible with the network and all the other computers that output our film (see the Annual for more details). I would quite like to see the magazine laid out using *PageStream3* instead of (the far more expensive) Quark *XPress*, and I would love us to use *TVPaint* instead of (the once again more expensive) *Photoshop*, but I'm not allowed to. We are all fervent Amiga-nuts though, so you'll often find us writing at home using *PenPal* on our A1200s or image processing the images from our reviews using *ImageFX* or *AdPro*.

Amiga hacks

Q I would like to get a job as an Amiga journalist writing about games, hardware and software. Could you tell me how you go about getting into the industry? Is it a case of not what you know but who you know?

A It is definitely more a case of what you know than who you know. I started as an artist on a bodybuilding mag. But I was also an Amiga owner, and keen reader of ***AF***. So when I applied to ***AF*** (as an artist not a writer) I was of more use to the magazine than someone who couldn't tell a TV modulator from a modem.

Getting started in the industry is just a matter of learning all you can about the Amiga and proving you can write, then approach one of the magazines and show them what you are capable of. If they have no vacancies there and then, don't give up. If you are any good, persistence will pay off. Try writing freelance reviews at first, if you're good enough you will soon be asked to come 'in-house' because it works out cheaper for the magazine that way.

If your *Cando* can't and your *Scribble!* won't, you're probably having some problems with your *Amiga Format* Coverdisks. Here we answer some of your common queries...

WE COVER DISK QUERIES

COVERDISK SOLUTIONS

We present a selection of solutions to coverdisk problems compiled from the Workbench section of *Amiga Format*.

Issue 43

Q Whenever I quit *Prodata* I am left with a blank Workbench screen or a CLI that won't recognise any commands when I boot from the disk. Is there a way around this?

A Not really. This happens because *Prodata* clears down the Workbench in order to save on memory. If you have a large portion of memory (say 2Mb or more) then you can put a `Run` command in the C directory of a copy of the Coverdisk, and edit the start-up sequence of the disk to:

```
Run Prodata
```

This will force the program to multitask and so leave the rest of the operating system intact.

Issue 42

Q Is it possible to include machine code routines within *AMOS* programs? This would save me a considerable amount of time, because I'm a machine code programmer myself.

A Yes it's possible. You need to know the address of the code in memory, and then this command will execute the raw machine code. Don't forget the `RTS` command at the end of your assembler routines, otherwise your machine will crash:

```
CALL address
```

As for how you get the code in memory, you can either have a list of `DATA` statements and POKE it in, same as the old magazine listings used to do, or use this command to load binary files into a known memory location:

```
BLOAD address
```

If you want to save a block of binary code, then this does the job:

```
BSAVE address, length
```

Both of these methods are handy when you want to load in game-save positions and alter them.

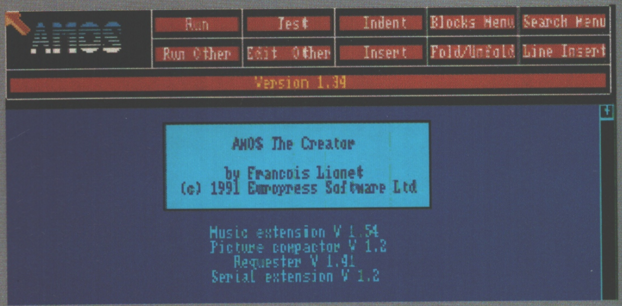
Issue 42

Q I can't load in the listings from the *Easy AMOS* on your Coverdisk into *AMOS*. Does this happen with all *Easy AMOS* listings?

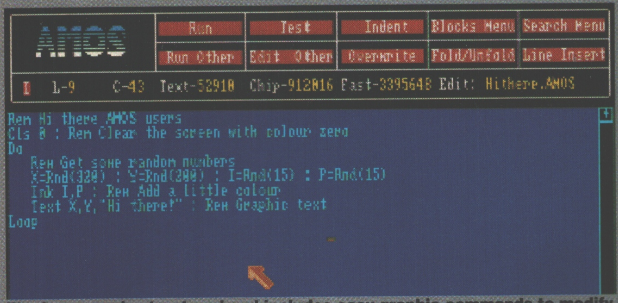
A The *Easy AMOS* demo had crunched listings to save space, which is why they won't work on *AMOS*. However, you can swap programs with the full commercial version of *Easy AMOS* and *AMOS* without any problems.

Issue 42

Q When I load or save a file in *Easy AMOS*, the file requester takes ages to read in the whole disk directory. Is there a way to speed it up?



The *Easy AMOS* program enables you to create BASIC programs with the minimum of hassle. If you can wait for the file requester that is.



The language is structured and includes easy graphic commands to modify portions of the screen's characters or graphics.

tion. If you add 4 to this resolution number, interlace mode will be invoked. To display a screen use:

SCREEN SHOW n

And to hide it use:

SCREEN HIDE n

You need to HIDE a screen before you can SHOW it.

Issue 35

Q I can't decrunch the Extras disk properly. I formated a disk, called it Extras and followed the instructions until I got to:

```
Extracting: (32768) 76576 ROMOS1.3
```

Then a system request asked for the Coverdisk (which is already in the drive) and then nothing, but nothing worked. I don't have *RAMOS*, so what do I do?

A The problem arises from using Workbench to format the disk. Use the Shell or CLI instead and type:

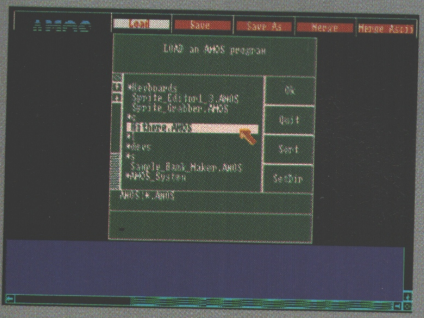
```
Format Drive DF0: name Extras noicons OFS
```

Everything should now work correctly.

Issue 35

Q I can't get the Extras disk to decrunch. When I double click on the icon, my A1200 tells me that *LHA* cannot be found. Where is it? Has it been removed from Workbench 3?

A It was never on Workbench, it's on the Coverdisk. You must be double clicking from your own Workbench. What you should do is boot the Coverdisk and double click from there.



The *Easy AMOS* file requester can be annoyingly slow when you've got loads of files on disk.

A The only way we've found to speed it up so far is to click on the file you want, as soon as it appears on the screen.

Issue 42

Q I have worked out how to load my own IFF pictures in *EasyAMOS*, but they always look really strange. What am I doing wrong?

A You need to open a screen in the correct resolution, one that has enough colours to display the picture. The correct format for doing this is:

```
SCREEN number, height, width, colours, res
```

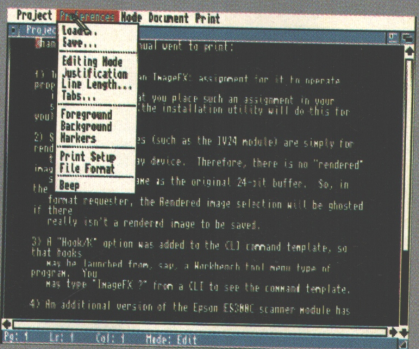
Where `number` is the number of the screen (between zero and seven), the `height` and `width` are in pixels, `colours` is the number of colours used and `res` is zero for low resolution and $8000 for high resolu-

Issue 41

Q After having received a Star LCD printer as a present I started writing some letters and doing some notes on the *Scribble!* program which you had on Coverdisk 41. However, I've come across a small problem. When I want to type a figure of money on the screen it's no problem. But when I want to type a pound sterling (£) symbol, this is what actually gets printed out: £¥20.00. Why does *Scribble!* do this? There aren't problems with any other pieces of software.

A Did you copy the right printer driver from the Extras disk on your Workbench? Did you set the driver through Preferences? Probably not. On the Workbench disk there's a drawer called Devs. Inside this drawer is another drawer called Printers. You can see the files on here by selecting Show/All file from the Windows menu. If you're a Workbench 1.3 user then you need to copy the driver you want (EpsonX is a good general bet) from the Extras disk into the devs/printer drawer on your Workbench disk by using the *Install_Printer* program in the Pref's draw).

If you're using Workbench 2 then all you have to do is load Workbench, Show/all files, insert Extras disk, double click on its icon and double click on the Printers drawer. Pick the driver you want, click on its icon and drag it on to the RAM disk icon. Now look at the Devs drawer on Workbench and place the file from the RAM disk into the drawer called Printers. All of which should enable you to print your text out accurately.



***Scribble!*: As with all other programs, it's wise to save as often as possible in case of a crash.**

Issue 40

Q I'm finding it completely impossible to get *CrossDOS* off the *Amiga Format* disk and on to my Workbench disk. How do I do this?

A First off, load up Workbench. Click on the Shell and type the following in:

```
Copy from MSDOSFileSystem:devs/mfm.device to SYS:devs
Copy fromMSDOSFileSYSTEM:devs/Mountlist.MSDOSFS to Sys:devs
Copy from MSDOSFileSystem:1/MSDOSFileSystem to SYS:1
Copy from MSDOSFileSystem:c/TDPatch13 to Sys:c
Copy from MSDOSFileSystem:c/MountMF to Sys:c
```

Owners of Kickstart 1.2 should enter `TDPatch 12`, rather than `TDPatch 13`. Workbench 2 users don't need the line at all. To set up the changes Workbench 2 users should drag the AttachDI0 icon to the WBStartup drawer. Everyone else should enter this:

```
Ed sys:s/startup-sequence
```

Move the cursor down until you're just above the `Loadwb` command. Now hit [RETURN] and on the blank line enter:

```
MountDI0:Fromdevs/Mountlist.MSDOSFS TDPatch 13
```

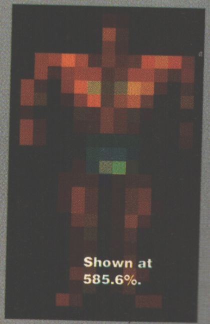
Again, users of Kickstart 1.2 should enter `TDPatch 12` instead of `TDPatch13`. To save these changes hit [ESC], then [X] and then [RETURN].If you messed up and want to enter it all again, all you have to do is hit [ESC], then [Q] and then [RETURN] to abort the editing process.

From now on whenever you use DI0 rather than DF0, the Amiga will expect a PC formatted disk to be in the internal drive.

Issue 39

Q I have been working through the DevPac tutorial, but I just can't seem to work out the code to move the sprite down the screen. Please tell me what I'm doing wrong.

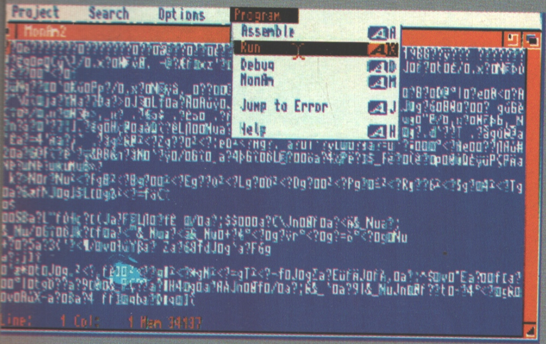
A The original programming feature failed to make one thing clear: in order to see any changes you make to the code, you must save them on to the DevPac disk. Now load demo.s and assem-



Shown at 585.6%.

This sprite is from the *Easy AMOS* demo.

Continued on page 114

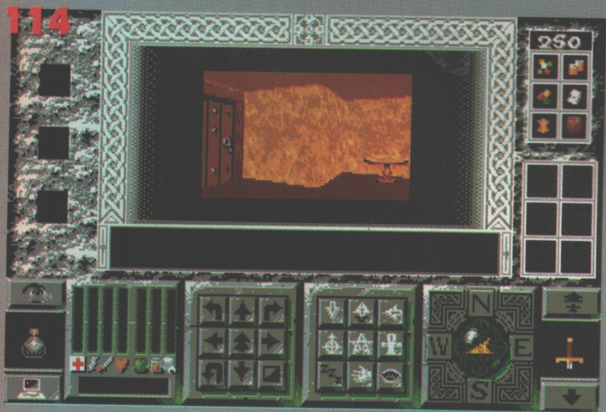

The most used option in *DevPac* will be Debug. They haven't written a bug-proof program yet.

ble as per the instructions. If you attempt to assemble the individual files (draw.s or move.s) then DevPac will report a number of errors, because the code refers to bits in the other files. demo.s is the glue that binds all the files together – it's the only file which will assemble properly.

As for the extra code,here it is. It's actually easier to copy the existing code and modify it to refer to the man_y variable (this refers to the sprite's position down the screen).

Below is a suitable piece of code for those of you who are stuck.

Don't be afraid to change the value of the figure #200 in the third line (the limit down the screen) or the #-16 value in the fifth line (the start position of the sprite).


If your screen glitches up when you're playing *Legends of Valour* you might like to try reducing the screen size.

```
move.w    man_y,d0     ;get the y position
add.w     #1,d0        ;and add 1 to it
cmp.w     #200,d0      ;Is y too big?
ble.s     .lessthany   ;no, still on screen
move.w    #-16,d0      ;yes, reset many_y .lessthany
move.w    d0,man_y     ;store the new value in man_y
```

Here's how it works. The value of man_y is put into the d0 register by the first line. The second line adds one to this. The third line compares this value to 200. If many_y is bigger than this, then it is reset. Otherwise man_y is less than or equal to 200 (not too big) and the program jumps to lessthany and puts the y position currently in d0 back into man_y.

Issue 40

Q I've been trying to get the *Legends of Valour* and *Chaos Engine* demos running from coverdisk 40 without much success. I've gone through all the instructions, but step nine just tells me `Unknown Command`. What am I doing wrong?

A Getting at the game demo is impossible unless you insert a space in-between the `Install` and `?` (question mark), the last instruction in our guide was wrong.

Issue 38

Q Can you tell me how to print out drawings from *IntroCAD*?

A Load Workbench first. Now put the *IntroCAD* disk in the drive and click on the icon. There wasn't enough space on the *IntroCAD* disk to include the printer device and its associated files – but you should count your blessings, the commercial disk didn't even autoboot.

Issue 36

Q I can't seem to de-Mash the *Cando Jnr* program properly. I keep getting CRC errors. Is this a problem with the disk or not?

A Usually it is. Most of the disk contains the DMS files. If these contain a read/write error then the *Disk Masher* program will not be able to de-archive the disk properly and will simply give a CRC error. However, the *Disk Masher* program does not work on certain Amigas. Anyone who has had a replacement disk which still doesn't de-Mash have two options; they can either find someone near them with a different kind of Amiga, and decrunch the files on that or send it to: A600 *CanDo* Returns, ***Amiga Format***, 30 Monmouth Street, Bath, BA1 2BW and we will decrunch it for you.

Issue 36

Q I can't get the *Cando Jnr* program to work at all. All I get is a message saying 'Sorry, this is the PAL version of the software and you have an NTSC machine'. What's going on?

A Pretty much what the error message says really. The version of *CanDo* on the coverdisk is for PAL machines and just won't work on the similar screen size (but faster) NTSC types.

Issue 36

Q The *CanDo Jnr* demo doesn't seem to load properly. After booting from the *CanDo* disk, it asks for *CanDo* Extras, then *CanDo*, then *CanDo* Extras... it just goes into a loop.

What on earth is wrong with it and can you help me out of this dilemma?

A The problem is that the program will do this on Amigas that only have one disk drive. This is because all versions of *CanDo* were designed to work on systems with at least two drives, so disk swapping is inevitable on single-drive systems.

It takes 16 swaps to get into the program on a single-drive Amiga. It might be a good idea to get yourself an external drive.

Issue 36

Q The *CanDo Jnr* program doesn't seem to work properly. I plough through the tutorial, but when I press the Release gadget, the program just hangs, this means that I'm left on the work screen (the console area at the bottom is missing) and the mouse pointer has Zzzs all over it.

Is there any way around this or is there a bug in the program?

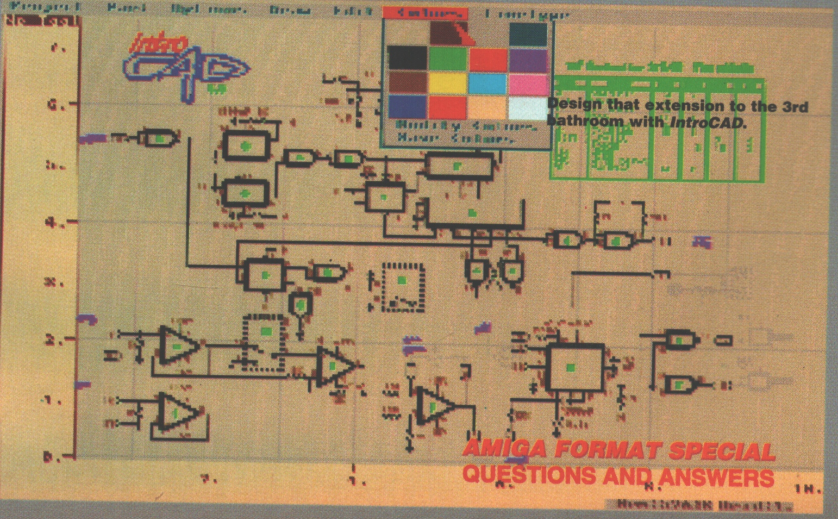
A This is another single drive problem which happens when the machine needs to ask for a disk swap and leaves the control panel behind the main working area. INOVAtronics has added a feature to get around this.

Simply press [Ctrl]+F10 at the same time and the work area should leap back into view. The mouse pointer may remain 'sleepy' (Changed to Zzzzs) but if you click with it it will return to the normal arrow.

Issue 36

Q I have managed to create a reasonable slideshow with *Cando Jnr* but cannot get it to run from a separate disk. It just comes back `Cannot run Slideshow: error 121`. How do I get it to work?

A You get the error code 121 because you're using the file in the wrong way. If you type the name of a file at the Shell or CLI, then the Amiga expects that file to be a program. Because the *Cando*


Design that extension to the 3rd bathroom with *IntroCAD*.

deck is not a program – it is a data file, containing the information needed to find the files that the deck uses. If you want to put a deck on to a separate disk, then the startup sequence of that disk should read:

```
Deckbrowser nameofdeck
```

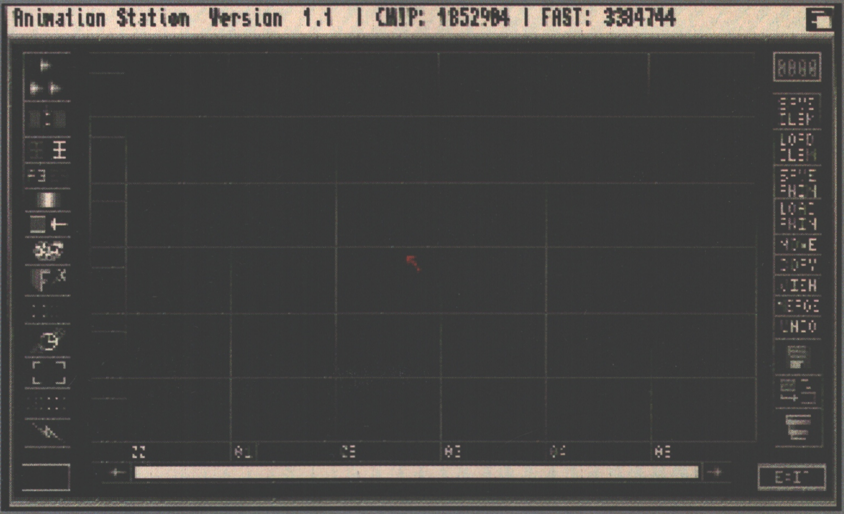
Deckbrowser is about 98K in length, so don't make your decks too big. That utility (together with *Deckbinder* and *Deckrunner*) are in the C directory on the *CanDo* disk. It is wise to copy all three to the C directory of your stand-alone disk. Don't, however, think that things are that simple.

Once you've managed to get the *Deckbrowser* program up and running, and your deck autobooting from a disk, they will inevitably tell you that more files are needed – these turn out to be, for the most part at least, libraries from the *CanDo* disk, but there are also the pictures for your slideshow.

Each of the individual decks will need a slightly different complement of files but the ones you always need are the `Icon.library` and `Diskfont.library`, that should be in the `libs` drawer of your stand-alone disk.

Some *CanDo* decks will also need to make use of the `Cando.library` which is illegal to distribute on commercial disks wihtout INOVAtronics' consent.

However, disks that are created for local or PD use are fine. The only way to find out how to do it is to do it – you'll need to use lots of trial and error, but it is possible. The *CanDo* Installer program is useful too, for rerouting paths to picture names – otherwise you have to call your stand-alone *CanDo* and put all the pictures in a drawer called Images.



Quite often it's easier to look at music in a graphical form (with blocks representing notes) rather than in standard score notation form. This is especially pertinent if you're playing samples and not notes.

Issue 37

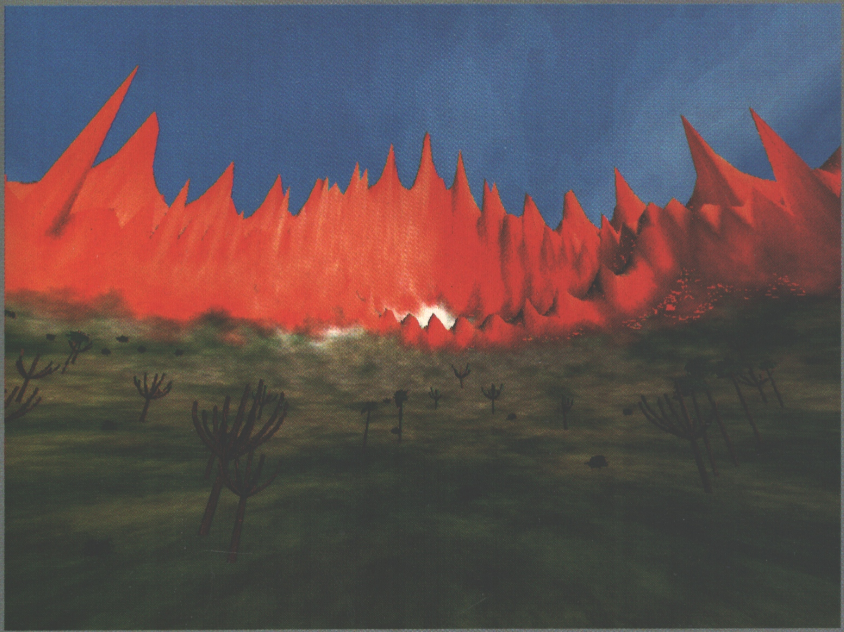
Q How do you create a self-booting animation disk from within *Animation Station*? I don't want to be forced into having to load a viewing program to see the cartoons.

A You have to use an animation-view program to see animations, although it doesn't have to be a big or commercial one. If you want to see how it's done, check out the Down at the Arcade disk (Coverdisk issue 39) with Workbench and Shell to see how.

Issue 37

Q While using *Animation Station* I ran into a problem. If I put a sound on a background audio channel, it plays continually, great. Now can you tell me how to turn it off again?

A We're a bit unsure about this one ourselves. One way to do this would be to play a blank sample (a sound that contains no noise- just filled with zeroes) on the same sound channel.



Using *Vista* you can create incredible landscapes. But it takes rather a long time to render them. If you've got a bit of spare cash you can speed things up though (turn to page 116 for some real *Vista* tips).

Issue 37

Q Is it possible when using the *View* utility in *Animation Station* to turn off the credits screen? I'd sooner not have this displayed if I put a disk into the Public Domain.

A There are other anim viewers around if you really don't want messages appearing; *ShowAnim* or *PPanim* will do the job for example.

Issue 37

Q I have a problem with *Animation Station*. When I try to save an animation, the screen goes blank and nothing happens. Maybe it has something to do with saving the undo buffers, as stated in the Readme file. It says either save the Undo buffers to disk, or make sure the computer does not save its Undo buffers. Help!?

A Firstly, a word of warning. If you've copied *Animation Station* on to your hard disk then you need to assign the drawer where it's stored as AStation. If you don't , strange things start happening to you as you use the program. To carry out this procedure, type the following into Shell or include it in your hard drive's startup sequence just before the `Loadwb` command:

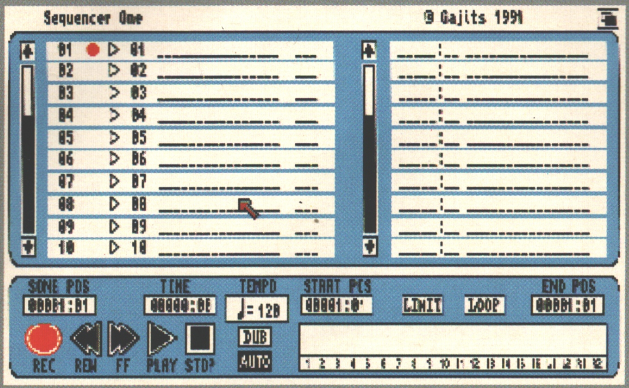
```
Assign Astation: DH0:Drawer
```

Where DH0 is the name of your hard drive and drawer is the directory to which you have copied *Animation Station*. To set the program correctly you have to use the EditConfig script which came with it. Just double click on the icon and the *Animation Station* Preferences will appear. The reason why you have to change where the program saves its Undo buffers to, is that if it saves them to the RAM disk as standard, that takes memory away from the system – which can crash your Amiga if you only have 1MB and a large animation.

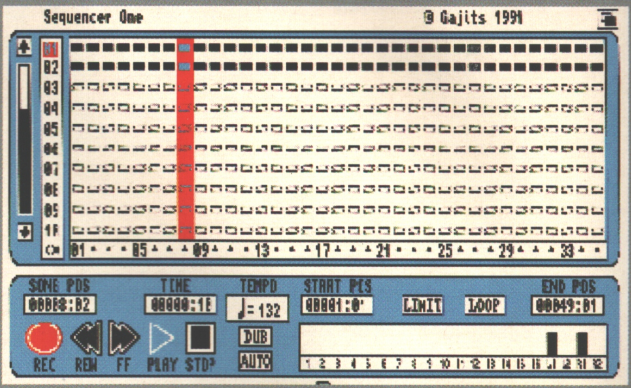
Issue 37

Q I can't get *Animation Station* to insert stills into my anims. I click on 'Load ILBM', select the picture and then nothing happens.

Continued on page 116



The graphical front-end of *Sequencer One* makes the process of editing music easy. This process is made even easier by the tape style icons.



By using the bar graph levels (on the bottom right) you can ascertain exactly which channels are being used by each particular instrument.

A The picture needs to be loaded into the program's internal buffer. In order to put it into the animation just click on the Append to Last gadget afterwards.

Issue 33

Q I'm having some problems with *Vista*. I've just created an amazing landscape with rivers, lakes, waves, stars, the works. After waiting 45 minutes for it to render and spending another 15 admiring it, I tried to save it using the 'Save IFF' menu option, but all I got was a message telling me that *Vista* is full. Which files can I delete without ruining the program?

A You're getting the error because you're trying to save on the packed-to-the-gills *Vista* disk. You can remedy the problem by saving your graphics image on to another, blank disk, rather than deleting files from the *Vista* disk. Format a disk from the Workbench and then when you come to save your IFF image, remove the Vista disk, insert your blank and then click on the DF0: gadget. Now enter your file's name and the image will be saved on the new disk, rather than the full *Vista* disk.

Issue 33

Q I loved your *Vista* program and I have been using it for hours and hours. It produces great pictures, even if it does take a long time to run. Would it be worth investing in an accelerator?

A Well they do save you considerable amounts of time. If you can actually afford it, an accelerator makes a huge difference to programs which involve complex maths like *Vista*. If you are going to get an accelerator, the best A500 one we've seen is the CSA Mega Midget Racer which costs about £550, for which you get 4Mb of 32-bit RAM, a 33MHz 68030 processor and 68882 math coprocessor, making it quicker than an A3000.

Issue 33

Q The *Vista* program on your Coverdisk keeps crashing my A1500 whenever I attempt to render a picture. Is this my fault?

A Assuming that you're talking about a clean A1500 with absolutely no expansions, the most obvious cause is that the second internal floppy drive is grabbing some memory. It's not easy to disconnect the second drive because it's built into the machine. Each and every disk drive connected to an Amiga takes some memory (between 20 and 64K depending on the type). So an A1500 always has less memory than a machine with only one internal floppy disk drive. This is certainly enough to crash *Vista*. Be aware that, because all of the inbuilt one meg of memory on an A1500 is chip RAM, some software will just not work, because it needs fast RAM in order to work. Investing in a memory expansion would seem to be the solution..

Issue 30

Q I have lots of RAW format sound samples from my collection of PD disks. How do I convert them to IFF (Interchange File Format) to use in *Sequencer One* Coverdisk?

A The software sold with many sound samplers can do the job – you just load the sample in RAW format and save it again in IFF. Please remember though, that most sampling software will not run unless you have a sampler connected.

Issue 29

Q I tend to use long samples rather than short instruments. Apart from *OctaMED*, on the Coverdisk of issue 29, is there a better music construction program for this sort of work?

A Yes. DR T's KCS Level 3.5 is the best music package available on the Amiga and will more than suffice for the job you require.

Issue 20

Q How on earth do I get the *NoiseTracker* module player to play tunes?

A Once the program's running, load in your module as a data file, crunch it and save it out as a different name to the same directory. What the author of *Noiseplayer* failed to mention in his documentation was that his program will only play crunched modules.

Issue 31

Q How do I get *Doody* to work on my Amiga? I have 1Mb.

A Simply make sure all external disk drives are disconnected first. Click on quit from the console menu and then type this (pressing [RETURN] after each line):

```
Memclear
Doody/Doody
```

Turn off the machine to get rid of this.

Issue 31

Q How do I get Knightmare to work on my Amiga? I have 512K of memory.

A Click on quit from the Console menu and then type:

```
Memclear
Knightmare
```

Not forgetting to put a [RETURN] in after each line.

Dodgy disk?

Q Where do I send my coverdisk if it doesn't work?

A Send the disk and an SAE to:

Amiga Format [Month] Disk
Disk Copy Labs Ltd
Units 2&3
Omega Technical Centre
Drayton Fields
Daventry
Northants
NN11 5RT

Before you do send the disk off, it's a good idea to try using the *DiskDoctor* program on your Workbench disk with it.

Disk duplicating

Q What's the deal with copying the coverdisk and giving it away to people?

A This is quite simple. You're free to copy the Public Domain and Shareware software that we include on our coverdisk, so long as you follow the instructions of the author. This usually means that when you copy it, you have to include all the files in the drawer, complete with Readme files. However, the demo or full price software which we include on the coverdisks falls into a different category. We are licensed by the appropriate software

house to include the demo or full price program on our coverdisks. Any further copying of this software is effectively piracy. Now, this doesn't matter too much with the demos because the software house wants as much publicity as it can get. You shouldn't, however, copy the second coverdisk software, because this is piracy. Simply because we've put the program on our Coverdisk, it doesn't mean that it has entered the Public Domain. Copyright in this case remains firmly with the software house, not us.

Issue 40

Q I seem to be having problems getting at coverdisk 40b. I followed the instructions all the way, regarding formatting and de-crunching on to two blank disks and everything seemed to be fine until I got to the final stage. I loaded Workbench as instructed, went to Shell and typed:

```
Install?
```

Workbench then told me 'Unknown Command'. So I just tried

```
Install
```

Which got me the message

```
Usage INSTALL [Drive] / DF0: DF1: DF2: /
[Noboot] [Check]
```

Which was a bit more promising, so I typed

```
Install DF0:
```

The Amiga then asked for the Workbench disk back and then told me it was write-protected, which I already knew. All further attempts to get around this problem have met with failure. What am I supposed to do?

A The answer to this problem is a jolly simple one. All you have to do is insert a space between Install and ? so that you actually enter

```
Install ?
```

This is because the install command lives in the C directory of Workbench, so to use it Workbench must be available.

Copy catalogues

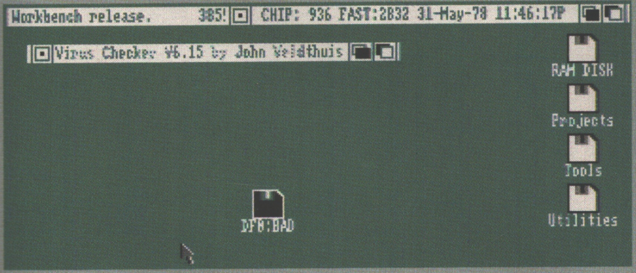
Q I had a faulty coverdisk last month and I'd like to make sure that my new one doesn't go wrong. What can I do to safeguard it?

A Simple really; back it up.First of all load up your Workbench disk. Locate the icon called Shell or CLI and double click on it. When the Shell window appears and the drive light is off type in the following (the 0 is a zero, not a letter O):

```
Diskcopy from df0: to df0:
```

and press the [RETURN] key. The Amiga will now ask you to insert the source disk. This refers to this disk you want to copy, which in our case is the Coverdisk. Wait for a while and it will read all the information off the Coverdisk. It will then ask for the destination disk. At this point, you should insert your blank disk into the drive and press the [RETURN] key, note here that the disk doesn't have to be formatted.

You'll now have to swap the source and destination disks over a few more times until the message 'Diskcopy finished' appears. Now type in `endcli` and your disk is copied.



If your coverdisk is faulty, then it may well appear on screen like this. Workbench can't read any data from the disk and calls it `DF0:BAD`.

Fame and fortune

Q How do I go about getting a program included on the Coverdisk?

A You simply send it to Pat MacDonald at this address:
Amiga Format
30 Monmouth Street
Bath
Avon
BA1 2BW

You should bear in mind that Pat receives a hell of a lot of disks each month and it takes a while to check them all out.

Sadly, we can't return disks, even if you send us an SAE. Before you send the program in, check it on as many different kinds of Amiga as you can, the less compatible a program is, the less likely we are to use it.

Originality is what counts with programs. Try to come up with something that hasn't been done before and will be useful to as many Amiga owners as possible. Don't resort to copying other ideas, unless of course you can do it a lot better. Try to include as much documentation as you can. We only have a limited amount of space on our coverdisk pages and so Readme files are very important.

As a guide of what to attempt, the top three most popular games sent for inclusion on the coverdisk are Tron games, Tetris games and Breakout. These are derivative ideas which have been overdone of late.

Good ideas for coverdisk software are RPGs and short but well-documented utilities such as virus checkers, file management utilities and the like. Oh, and we like shareware software a lot, so investigate this format for your program.

Disk assembly

Q How does the coverdisk get put together?

A The first task is to decide what's going on the disk. This isn't as easy as it sounds, because we sometimes have quite a few software houses vying for the space to include their game or serious program demo. We usually include the game we think is going to be biggest although it sometimes ends up being simply the software house which can get the demo to us before a certain deadline.

The rest of the disk is built around the main demo. Often we try to tie in other similar kinds of software or programs that we can link in with a feature in the magazine. Obviously, the mix of data is important and so we try to include something for everyone; games, utilities and serious packages are all offered equal amounts of space.

Once the run-down of the disk is verified, Pat actually goes about creating the Coverdisk. This involves squeezing everything on (sometimes by using a packer) and checking all the programs on as many different kinds of Amiga as we can lay our hands on. Once Pat is satisfied that the programs all run in the correct manner on the right machines and that everything's virus-free, he can prepare some master disks to be sent off to the duplicators. When the disks arrive at Disk Copy Labs, our duplicating company, they are checked again for viruses before being put on to master copying machines. These large devices can copy any information on a disk, irrelevant of its format and 110,000 copies later, these are sent off to have labels attached.

Budget the bits

Q Why have a Coverdisk on *Amiga Format*? Wouldn't it be cheaper without it?

A Not massively so, no. We were the very first people, anywhere to regularly include a disk on the front of the magazine. The ***Amiga Format*** policy is that the disk is just as big a part of the magazine as the pages themselves.

This belief has been borne out in all the reader surveys we've carried out.

Our readership enjoy seeing demos of new products, they enjoy getting their hands on the latest shareware software and they enjoy using programs created by ***Amiga Format*** readers.

As long as there is an ***Amiga Format***, there will be a cover-mounted disk.

WHY ONLY ONE DISK?

Q Marcus Dyson, *Amiga Format*'s editor answers the question: Why has *AF* dropped from two to just one Coverdisk?

A "We've had mixed responses from readers to our dropping of the second coverdisk. We even have mixed feelings about it here in the office. It was a financial move, and we all saw and understood the reasons why the decision was taken. But in terms of bringing you readers as much free (or cheap) software, and great game demos as possible, it was a sad day. After thinking long and hard about how we could improve the situation we have decided to offer our subscribers a second disk every month.

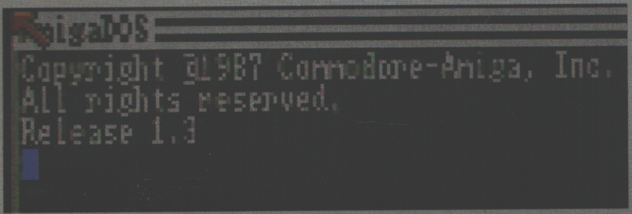
The disk will be available as one of the special offers you get when you subscribe, readers will still be able to choose a free commercial product instead.

But if they so choose they'll get a disk crushed and crammed with the best PD and reader utilities, games and demos every month."

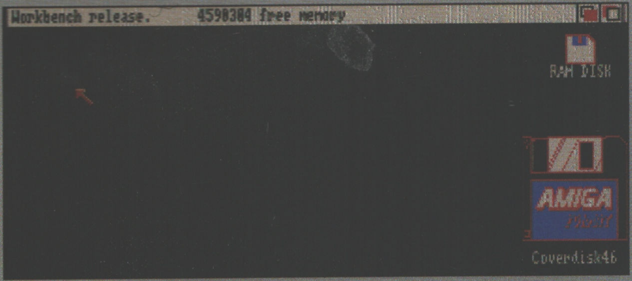
KNOW YOUR COVERDISK

Q My last computer used text for making programs run and I'm having problems getttting to grips with the graphical interface of your Coverdisk. Quite simply, how do I run the programs on the disk?

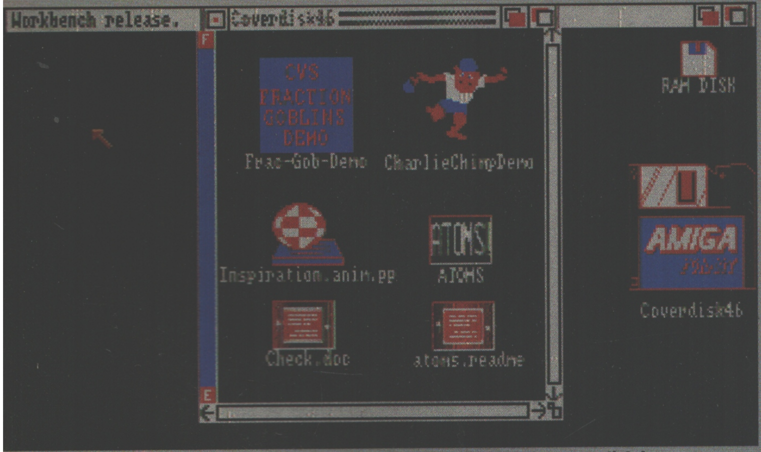
A The Amiga's graphical interface (Workbench) is actually jolly easy to use once you get to grips with the fact that you won't have to type in anything when you want a program to run. The entire procedure is carried out by using the mouse to point and click at items on the screen. Follow this step by step procedure and you'll soon have your ***Amiga Format*** coverdisk programs up and running.



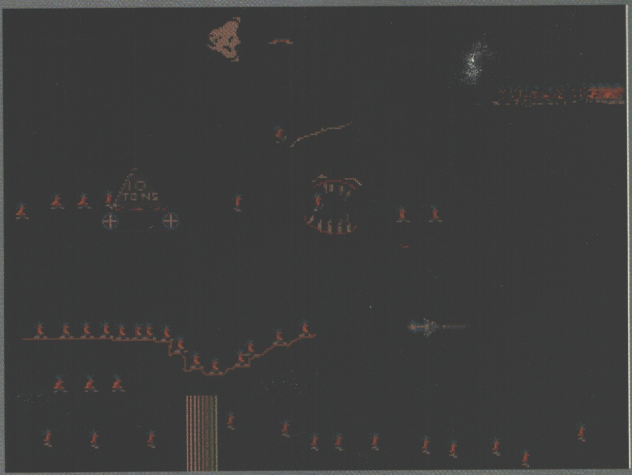
Although some programs auto-run when inserted into your Amiga, others require the services of Workbench to run. The *Amiga Format* coverdisk uses Workbench to run individual programs. To start the process off, insert the coverdisk and swtich on your Amiga. The screen should look like this.



After a protracted session of whizzing and whirring, the drive light should go out and your screen should like this. That huge icon at the bottom right of the screen is the Coverdisk. At the moment it has been selected by clicking on it once. You can tell if something is selected because it goes darker.



If you now double click (twice, quite quickly) on the coverdisk icon, you can have a look at the contents of the disk. After some more whirring, a box will appear on the screen, with all the coverdisk programs contained on it, represented by icons. Those two at the bottom are standard text files.



If you double click (tap the mouse button twice quickly) on the .Anim file you can check out the animation which inspired the game *Lemmings*. Once you've seen enough of the little blighters getting pulverised, squashed, mangled and generally deadened, you can quit by pressing a mouse button.

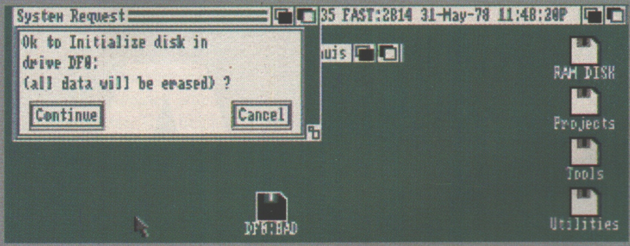
Of far more interest on this particular Coverdisk (which was taken from issue 46) is the *Charlie Chimp* demo. To run this, simply move the mouse over the chimp icon, click twice quickly and those ZZzs will appear. Whenever your Amiga is busy (in this case loading the game demo) it will display the busy icon and ignore you until it has finished.

If everything's gone all right, this title screen should appear like this. You can now play the game until you're bored. When you've had enough of the demo, either restart your Amiga (by pressing [Ctrl] and the two A keys) and try something else on the Coverdisk, or read a nice book instead.

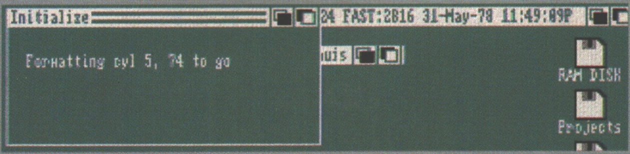
HOW TO GET YOUR BACK–UP

Q I've lost a couple of coverdisks to general wear and tear. How can I copy it and save myself the hassle of sending off for replacements?

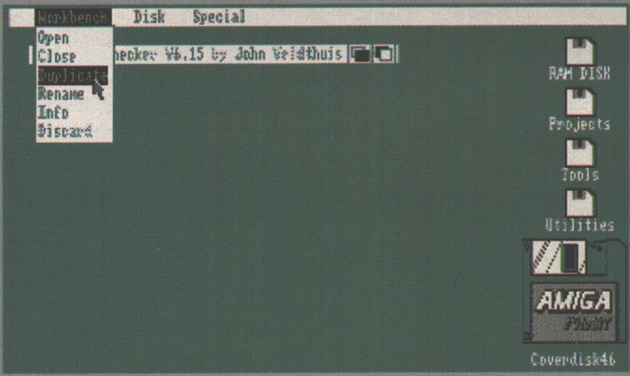
A We advise everyone to back–up the coverdisk, espcially if you're planning on using it a lot. All floppy disks are susceptible to disk–decay, even if you store them in perfect conditions and look after them. You can remove all worry by backing up the disk and using the copy. Follow this procedure:



The first thing to do is to create a blank disk. To do this, pop your disk into the drive. Workbench will tell you that it's bad at which point you should click once on it and then move the mouse up to Initialise. Click on Continue.

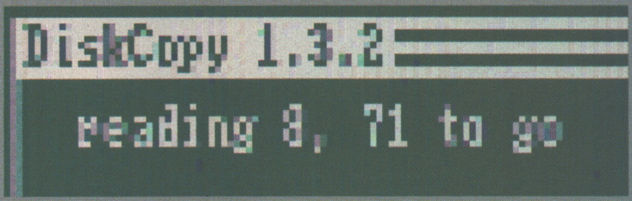


The formatting process will now start. There are 80 tracks on each disk and these are counted down by Workbench. Once it has finished formatting it will verify this disk. If it encounters an error you'll be advised to get another disk.

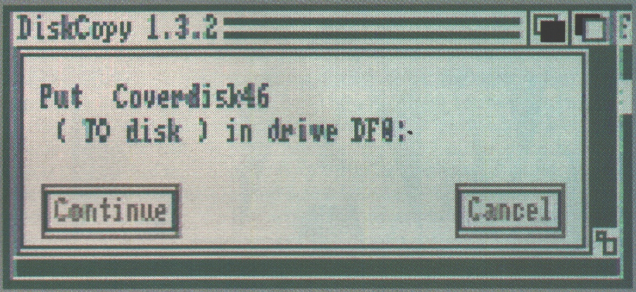


Once it has finished, take out the blank disk and insert the Coverdisk. Move the pointer over the top of it and click once. The shutter on the disk should open (as above) and the disk should become darkened (selected).

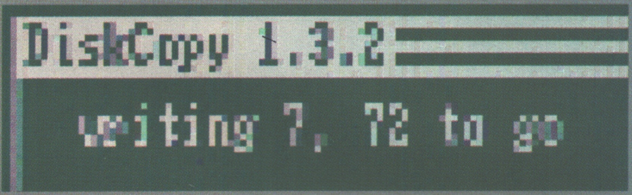
Move the mouse up the Workbench icon and click on Duplicate. This starts the copying off. Workbench will ask for the source disk (that's the Coverdisk), which is already selected. So just click on Continue.



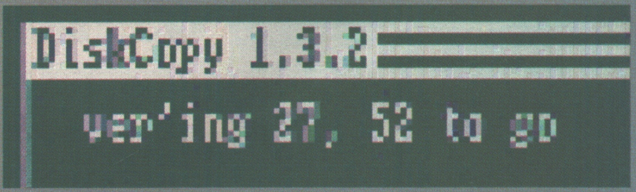
Workbench will now proceed to read all the contents of the coverdisk into memory. It counts through the 80 tracks until everything's stored. If you've not got much memory you may have to swap disks a couple of times.



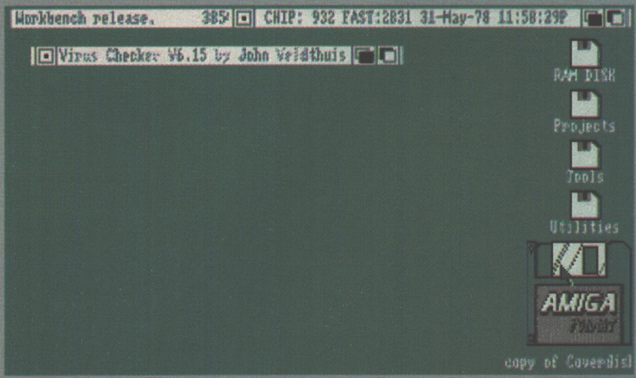
With all the data in memory, it's time to spit the data back out on to your copy disk. Insert the blank you prepared earlier and click on the Continue requester. The transfer process now works in reverse.



And all the data gets plonked from your Amiga's memory on to the copy disk. All things being well, and there being no errors on the blank, Workbench will count up through the eight tracks and then move on to the next step.

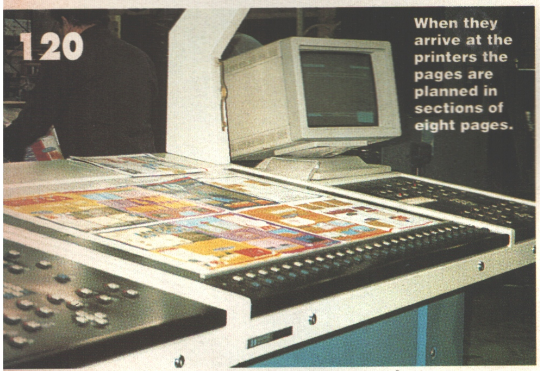


This is the verification process. This is just Workbench's way of making sure that all the data has been transferred successfully on to the duplicate disk. After all, there's not much point in having a dodgy copy.



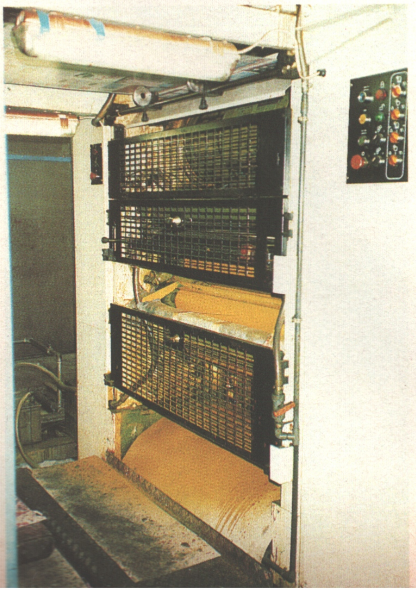
Once it has all finished, Workbench will reset itself and you'll have a large icon called Copy of Coverdisk on display. You can now put your original safely away and create merry hell with the copy in complete safety.

MAKING A MAGAZINE



When they arrive at the printers the pages are planned in sections of eight pages.

Plate-making (below): four aluminium plates are made for each page – one for each colour.



This copy of the *Amiga Format Special* was lovingly created by a highly-skilled team of journalists and production people. But how do we arrive at this marvellous end product? Here's how...

Special occasion

Q I'm well into Amiga DTP, so can you tell me how are ***Amiga Format*** *Specials* produced?

A The first stage in producing an ***Amiga Format*** *Special* is deciding the contents and producing a flatplan (a plan of the number of editorial and advertising pages). Once we know how many editorial pages we need to fill, we decide how many pages to give to each subject and then commission writers and artists to provide the words (called the copy) and the illustrations.

The freelance and in-house contributors are given strict deadlines because late copy can disrupt the whole production process. These deadlines are staggered so that a steady supply of copy reaches the magazine. This is called a copyflow.

While this is happening the art editor designs the cover, the page grids and the house ads (the advertisements for the ***Amiga Format*** *Special* that appear in other Future Publishing titles). When the copy and illustrations arrive on disk they are checked by the editor who makes sure that the terms of the commission have been fulfilled. It is then passed to the production editor who checks the copy in a word processing program for grammar, accuracy and spelling mistakes, known as literals or typos (typographical errors).

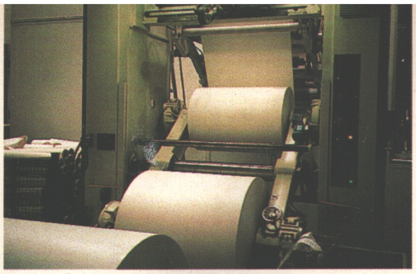
The production editor then puts the copy on to the Quark *XPress* page grid, sets it in the correct typestyle, and writes the headlines. The production editor then sends the page grid and the illustrations to the art editor who designs the page in an eye-catching and attractive manner. If the illustrations are grabs of screenshots they are imported into the page at this stage. If they are colour transparencies they are put on the page at a later stage, but are sized up now and a blank picture box of the appropriate size is left on the page. This entire process is carried out on Apple Macintosh computers.

When the page has been designed it is sent back to the production editor, who cuts the copy, or adds to it to make it fit on the page, and again checks it for grammar, accuracy and spelling mistakes. The finished page is then sent to the editor who gives it a final read. The pages are checked on laser proofs rather than on screen. The page is now sent to the production department. If it has boxes left for colour transparencies, it goes first to the scanning room.

The transparencies are scanned and cropped to the box size using a Scitex Smar 2. The transparencies are scanned in RGB (Red, Green, Blue, the raw colours that make up image) but output in CMYK (Cyan, Magenta, Yellow, Black – K stands for Keyline-black because B could stand for blue), because this is the format needed to transfer the pictures to the film from which the magazine is printed.

After the transparency has been scanned it is taken into a *Photoshop* program on a Quadra Macintosh where it is touched up to improve the quality. The scanning workstation of Scitex Smar 2, Mac, 24-inch colour screen and software is worth about £35,000.

Once the scanning operators are happy with the quality of the picture, it is imported into the Quark



The magazine is printed on continuous rolls of paper that passes between two cylinders.

XPress page that was sent from editorial. The page is then sent through hi-resolution output to another area of production where we start producing the film of the page that goes to the printers.

This area is known affectionately throughout the Future Publishing empire as the Lino Room, a term that was coined when we used a LinoTronic 300 imagesetter. That machine has now been replaced by a Hyphen Spectraset imagesetter, so strictly speaking it should now be called the Spectra Room. But it isn't.

The imagesetter is a sort of posh laser printer, but instead of printing to paper it prints to film. It's here that we come across a term known as the RIP Time, that means Raster Image Projection Time – the amount of time it takes the imagesetter to transfer the information on the document to film.

Four sheets, or plates, of film are produced by the image setter - one cyan, one yellow, one magenta and one black, that can be mixed to create any other colour. The amount of time it takes for a plate to go through the imagesetter depends on how much information has to be transferred to the film. If a page contains several graduated tints and large colourful images, it could take about 20 minutes for each plate to be set - that's 80 minutes per page. A typical **Amiga Format** *Special* page, although it's brilliantly designed and visually stunning, is fairly straightforward in technical terms and so each plate takes about six minutes to go through.

Press for attention

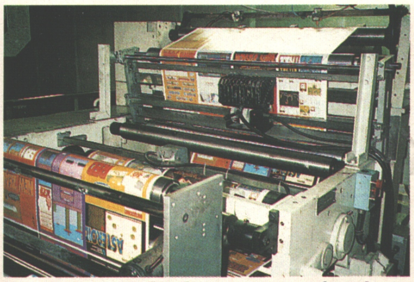
The film the imagesetter produces is negative, and is put through a processor that develops it. This film comes out in one long line, so it is cut, the four sheets are taped together and it is then checked to make sure that all the scans are in place, the pictures have separated and all four sheets have come through the imagesetter and processor.

Now it's time to go to the printers. The **Amiga Format** *Specials* are printed at Chase Web Ltd in Plymouth, which is part of St Ives PLC, one of the largest printing groups in the UK. It takes them about five days to print an **Amiga Format** *Special.*

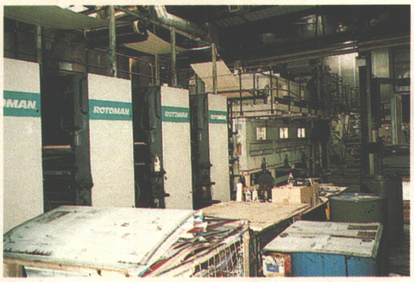
First the film is checked in by Chase Web's production department. They inspect every page to make sure that each one has the four sheets of film. The pages then go to planning where they are put on sheets of plastic known as foils. Each foil has eight pages on it and it is from the foils that the printing plates are made by exposing the film to ultra violet light. Plates are made for each of the four colours. The aluminium plates are then taken to the printing press, in this case it's a web offset process which uses a Harris M850 press. The plates are attached to cylinders that revolve and transfer the image to another revolving cylinder called a blanket. Ink is eased out of ducts on to the aluminium plates.

The inked image is transferred from the blanket to a continuous sheet of paper that runs underneath it. The paper is 'sandwiched' between two blanket cylinders, so images are printed on both sides of the paper. After the magazine has been printed the paper is folded up into sections and the these are perfect bound (glued together) by another machine. The last stage in this section is that the magazine cover is bound over the sections.

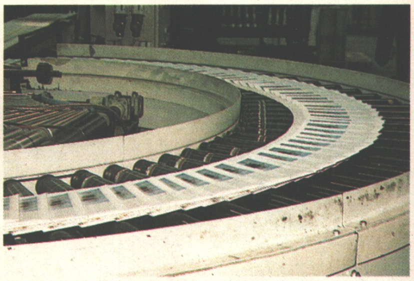
The magazine is printed on paper that is slightly larger than the magazine size and then trimmed so that you get nice neat edges. Trimming is the final stage of the production process. Once that's done you have a brand new **Amiga Format** *Special.*



Hot off the press. The images are transferred from the plates, to inked cylinders to the paper.



The printed pages are now ready to be checked and then bound together in sections.



The pages and the cover are glued together (bound) and then cut to the correct size.

WHO DOES WHAT

Group publishing director: Greg Ingham. Greg is the publisher of the *Amiga Format Specials*, and *Amiga Format.* As such he is responsible for the overall strategy. Greg also makes decisions such as how many copies are printed.

Group production manager: Judith Middleton. Judith organises the printing of the *Amiga Format Specials* and other Future Publishing titles. This involves setting print deadlines (sometimes up to 18 months in advance), negotiating prices with the printers and visiting them to make sure everything is running smoothly.

Editor: Tim Smith. Tim is in control of the editorial content and style of the magazine. After the subject of the magazine has been decided, Tim allocates page space to each area, commissions the copy, writes copy himself and checks the finished pages.

Art editor: Sally Meddings. Sally is the person who makes the *Amiga Format Specials* look so good. She designs the cover and the pages, commissions art work and photography. This is all done in consultation with the editor.

Production editor: Richard Jones. Richard sets the copy and artwork deadlines within the framework of the overall timing. He subs the copy (checks it for grammar, accuracy and spelling mistakes), and, unusually for a Prod ed, he writes copy too!

Consultant editor: Andy Hutchinson. He is the main in-house writer for the *Amiga Format Specials* and occasionally comes up with ideas for the content of the magazine in discussion with the editor and art editor.

Production technicians: Jon Moore, Simon Windsor, Chris Stocker, Simon Chittenden, Nick Harvey, Mark Gover, Heath Parsons. The scanning and Lino Room operation is co-ordinated by Jon Moore. Heath Parson and Mark Gover operate the imagesetter and processor, Nick Harvey archives (files) finished magazines on a WORM (Write Once Read Many) disk with a 600Mb storage capacity. The rest of the team is responsible for scanning colour transparencies.

Advertising sales: Duncan Ferguson, Warren Burgess, Anne Green. Advertising manager Duncan Ferguson, Senior Sales Executive, Warren Burgess and Sales Executive Anne Green persuade our advertisers that if they spend money advertising their wares in the *Specials*, they will make even more money because potential customers will see the ads and rush out to buy their products. Do you? Please let us know.

Advertising production: Tracy O'Donnell. After ads have been booked by the sales team it's up to Tracy to chase up the film in time for the print deadline. Sometimes we typeset, design and set the ads ourselves. Once the editorial film has been checked it is given to Tracy who puts it in a box with the film for the advertising pages and sends it to the printers.

HELLO!

Right then. What's happening on this page? We're trying to sell you another magazine, aren't we? Well, in a word, yes. We shan't beat about the bush, we shan't fudge the issue and there will almost certainly be no shilly-shallying. We'll just get on with it...

We know you've just lashed out the best part of three or four quid buying this mag, and you're probably quite enjoying it. So the idea of heading back to your local newsagent's is probably not particularly appealing. We can understand that.

But the point is that GamesMaster magazine isn't optional. It's essential. It's the only place where you'll get a true overview of the whole video games scene, every month. Each issue comes bursting with reviews, previews, tips, cheats and features guaranteed to keep your games knowledge at its peak.

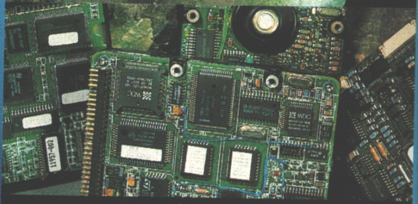
This month, for example, our featured stories are the arrival of a new Super NES Batman beat-em-up, the launch of the UK Mega CD, East 17 and Said Florence's Celebrity Challenge and a background look at Probe Software – Britain's leading development house.

There's a full 40 pages of software reviews, 20 pages of tips and, er, 2 pages of Dominik.

So there we have it. The latest issue is out now, and at the thoroughly inexpensive rate of £1.95, the question you've really got to ask youself is – can I afford to be without it?

PERIPHERAL KNOWLEDGE

Over the next few pages we will be taking a closer look at the bits and pieces of equipment that you would normally take for granted as we try to increase your peripheral knowledge



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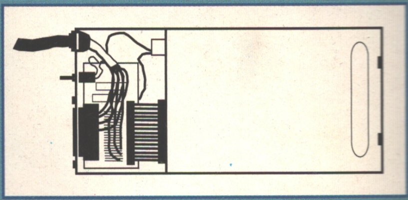
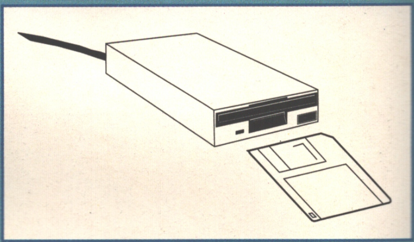
DON'T FORGET THE NEXT ***AMIGA FORMAT*** *SPECIAL* – THE **GOOD** HARDWARE GUIDE – YOUR GUIDE TO THE BEST INVESTMENT FOR YOU **AND YOUR** AMIGA!

"DRIVES!" SHE SAID



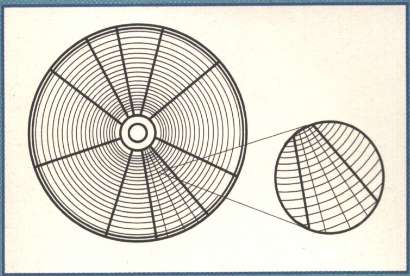
Floppy disks and drives are still the primary route between the Amiga and all the data in the outside world. Back in the 1970s these things were revolutionary, enabling even the home user to access information that had only previously been the preserve of the university or big business mainframe computer. Nowadays the floppy has evolved from the mammoth 8-inch monstrosity to the compact 3.5-inch article we use every day. Data storage has also increased up to today's 1.44Mb HD floppies.

(Above) An external disk drive for the Amiga. One day you'll wish you had one – if so, turn to *Amiga Format* issue 47 for the latest round-up.



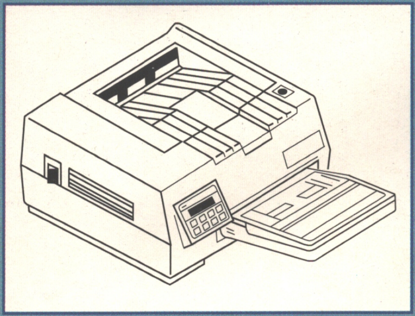
If you can't yet afford a hard disk for your Amiga, maybe it's time you thought about investing in an external floppy disks drive. These are available for all Amigas and couldn't be easier to fit, just plug them into the port on the rear of you Amiga. The only point to keep in mind is that you won't be able to boot from this drive because the Amiga always looks to df0 (the internal drive) first for information about the state of itself before doing anything else first. Apart from that, an external drive could be the best pressie you ever bought .

The humble floppy – there's more to it than meets the eye. And a little bit more care and attention from you would give more life to your disks.



It's the inside of the diskette casing that interests us the most. As you can see from the illustration above, the thin sheet of Mylar that comprises the data-holding floppy is a complex device containing tracks going around the disk (the same as you would find on an LP), sectors that cross the disk, and data-holding blocks (where the Tracks and Sectors meet). It is these Tracks, Sectors and Blocks that your drive read/write head runs over in its search for the information stored on the disk.

HOW TO SPOT YOUR PRINTER

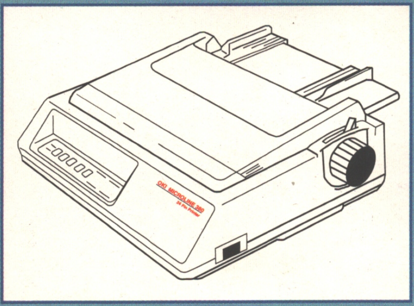


The ink and bubblejet printer, such as the Oki model pictured above, are the affordable version of the laser printer. They are not only a lot cheaper, but they can also offer comparable print quality.

Your choice of printer depends on what sort of quality you need your print-outs to be. There's no point investing £1,000 in a laser printer, if all you intend to use it for is to print rough copies of the novel you've been working on for the last 11 years.

There are four types of printer: dot matrix, inkjet, bubblejet and laser (in ascending order of quality and price).

Laser printers(above) work by building up a copy of the image you want to print in memory. This image is used as a template by the laser beam, that creates the image of the characters by firing a negative charge at a photosensitive drum which then attracts toner to it. These characters are transferred to the paper which runs over the drum. The paper is heated up to fix the characters to it.



Printers now come in all sorts of shapes and sizes, from the old-fashioned and distinctly noisy 9-pin dot matrix, to the better quality 24-pin dot matrix (pictured above) to the top-of-the-range laser printers.

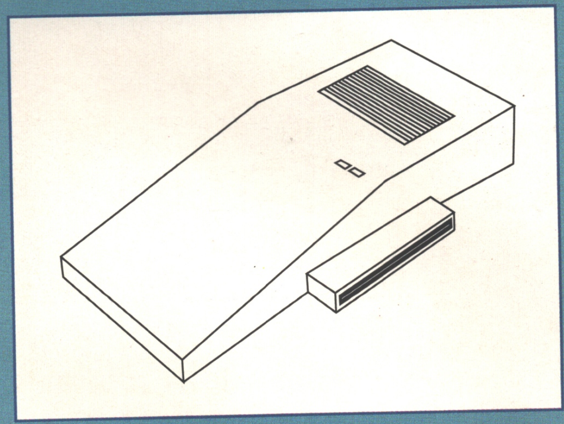
There are two sorts of dot matrix printer, (above) the nine-pin and the 24-pin, they both work in the same way but 24-pin printers are quieter and produce a better result. They work by forming the characters from a group (or matrix) of pins that strike the paper through an inked ribbon.

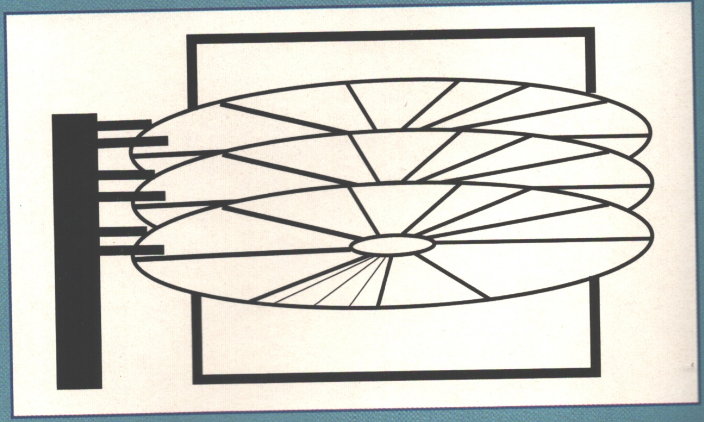
Bubblejet and inkjet printers work in a similar way. In the case of the bubblejet, tiny elements heat the ink in nozzles and at a certain temperature bubbles form that force the ink through the nozzles and on to a small moveable film mounted on a print head and on to the page.

Inkjet printers work by pumping ink through a series of nozzles on to the paper to build up the image. Both bubblejet and inkjet printers are quiet, something that a dot matrix, could never be accused of, and offer high-quality results.

The IDE (Intelligent Drive Electronics) controlled hard disk is now taking over from the SCSI (Small Computer System Interface) (see the illustration below left) as the Amiga's prime heavy storage device.

THEY'RE AS HARD AS NAILS





Since Commodore decided to move away from the SCSI faction of the disk drive controller war (the drive pictured above is a SCSI drive, the kind that plugs into the side of the older A500 and A500 Plus machines), all new Amigas have emerged with the IDE version of the home user's mass-storage device.

IDE hard disks are generally less expensive and more widely available in the UK (mainly because they are used by the IBM-contemptible using business community and so are mass produced) that their SCSI counterparts. However, this is not to say that you cannot still lay hands on SCSI controllers for the Amiga, you can. All this talk of new designs and differing standards may well be worrying you some , don't let it. Hard disks don't differ massively from their smaller, floppy forebears. Both the hard disk and the floppy disk use Tracks, Sectors and Blocks, and both of them need to be looked after. The one problem with the hard disk is that instead of being able to lose 880K (or 1.4Mb) of data if the disk corrupts (as is the case with the floppy) you can lose anything from 20 to 500Mb of information in one go. This means that constant backing-up of data, disk housekeeping, and care not to smoke near , put drinks on to or bash into your hard disk (even the internal IDE kind) is imperative. Take care.

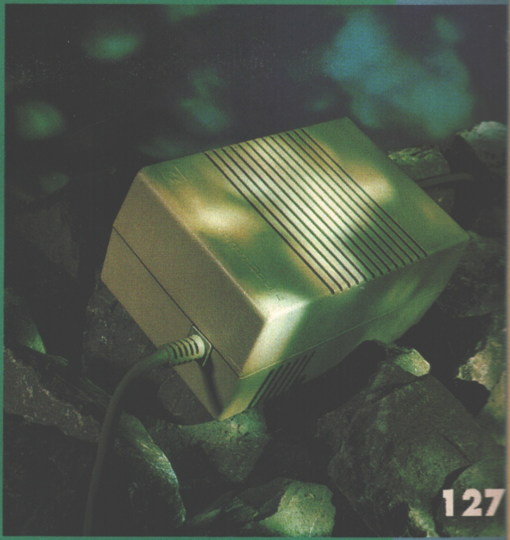
THINKING OUT LOUD

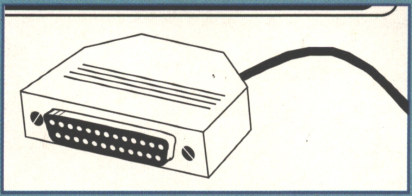
MODEM LOVE

Who says the art of conversation is dead? Using your Amiga, a modem, a telephone line and a few other bits and pieces, you can contact other Amiga users around the country and around the world. It doesn't take much to get in touch, but first you'll need one of those marvellous devices, the modem.

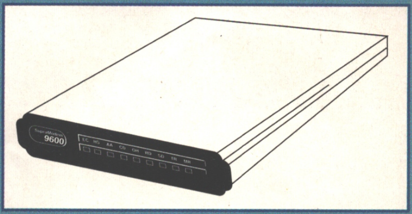
The back of an Amiga (left) is where you'll find the serial port

Right: The Amiga power brick. Here at *Amiga Format* we hope and pray that Commodore will one day include an internal power supply instead.



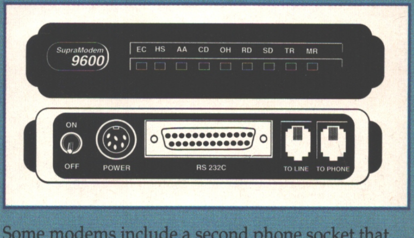


The serial cable (left) from the modem plugs into the back of your Amiga. The form of data transfer which takes place through serial ports is quite slow as data is moved one byte at a time. Unfortunately, the data has to be moved this way because phone lines are serial devices. In order to move data along parallel lines (ie eight bytes at a time) you'd need the equivalent of eight different phone lines.



Modems are now quite friendly items. In the bad old days the set–up was modified by twiddling knobs. These days all the internal settings are tweaked by software running on your Amiga. These settings and the movement of data are shown on the LEDs on the front of the modem.

The modem is your key to the world of Comms, short for Communications, and the gateway to the land of Bulletin Board Services. For more about this, turn to page 74.

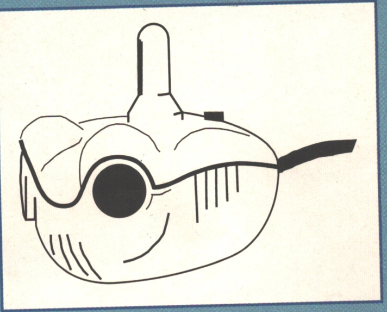


Some modems include a second phone socket that enables you to attach your phone to the network. With this set up you can then receive incoming phone calls or modem–sends without monkeying around with plugs and sockets. You can also dial out from your phone by sending pulse data through the modem straight to the phone. Very flash.

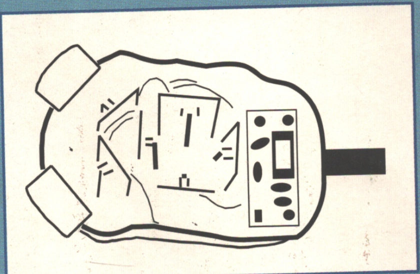
The Bug – still the only joystick to have gained the acclaim of an *Amiga Format Gold* (more than 90 per cent) rating.

GETTING YOUR INPUT

Before the mouse and the joystick, the only way to communicate with computers was by typing in the commands, now all you have to do is click or fire

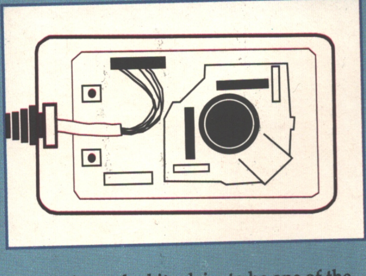


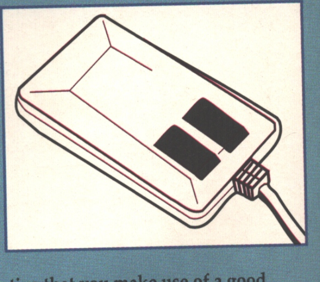
Although the bug has a very distinct shape and feel (it is lightweight and small enough to fit comfortably in the palm of one hand), and we hope that this is the way forward in joystick design, it retains the basics of every other joystick currently available for the Amiga (and any other home computer). Sadly, as an input device for the Amiga, the joystick – be it a Bug, a Competition Pro or a ZipStick – is still limited to its role as a games device.



Basically the joystick is a vehicle for a stem, some fire buttons and some directional switches at the North, South, East, West, North West, North East, South West and South East. No matter what your joystick looks like, it will follow these basic principles. This means one very strong thing to you: when you are buying a stick, there is no better criteria for your choice than how the stick feels in your hand. Believe us, from sad experience, there are fewer more painful Amiga sensations than the feeling of your hand after a few hours with a bad 'stick. So choose carefully.

An everyday object to you old hands, to newcomers the humble mouse takes some getting used to. But have you ever stopped to think how many times you click a day?

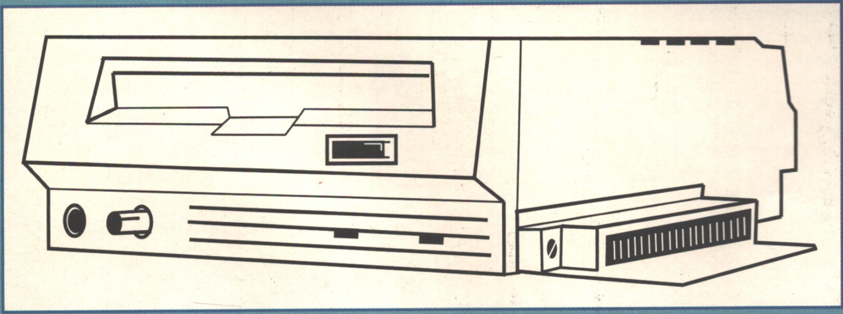




The Amiga staked its claim to be one of the world's most popular computers on the fact that it is so easy to use. Although the Amiga does provide the ability to tap in complex command lines using the Shell, you will find that most people will prefer to use Workbench because of its simple, instinctive and intuitive usage. Quite simply, we are used to pointing at things that we want to make use of. With this in mind, it is imperative that you make use of a good mouse, one that is comfortable in the hand. Although the Amiga's own mouse is no mean rodent, some people find it too light. Any mouse will have its pros and cons – but you can make your mouse easier to use (and longer lasting) if you take care of it. Use it on a smooth, unfluffy surface, and clean it regularly.

COMPACT AND BIJOU DISCS

There's no doubt that CD-ROM is the way forward for home computing, but what exactly does the future hold in store?



The A570 CD-ROM drive for the Amiga 500 and 500 Plus – one day all Amiga's will be equipped with Compact Disc technology, at least that's what we all want to see before too long. CD technology provides you with the ability to store up to 650Mb of data: sound and graphics as well as text, on a single disc. The basic problem however, is the fact that you can only really use this expanse of storage for storage of other people's data at the moment. There is limited capability for the home user (that's you) to use CD as a kind of massive one-way hard disk.

We say 'limited capability' because American peripheral makers supreme Great Valley Products (GVP) has developed a read/write optical drive although this is difficult to lay your hands on in the UK. It also costs somewhere in the region of £1,500-£2,000 – a far from home user price.

This is not to say that the advent of CD technology is not far off. With more and more mass market machines such as Sega's Mega CD, Commodore's own CDTV, Philip's and Sony's CD-i, and Nintendo's CD-based console appearing on the shelves faster than Teenage Mutant Ninja Turtles were disappearing about six months ago, the next step for the major developers has to be read/write Compact Disc for the home inside the next 18 months to two years.

And with the glad tidings that Commodore is to release a CD-based machine that will make use of the A1200's (and A4000's) AGA graphics standard due out before Christmas, it seems as if Commodore for one is committing *itself* to the furtherance of CD for you and us. And with the Amiga as the engine for the CD home revolution, we are all on to a winner.

CAPITAL LETTERS

If your letters never get printed in Amiga Format there may be a good reason. Follow our hints on how to write the sort of letter we just love to receive and you may yet see your name in print

Rubbish, man!

Q When the boulder drops off the stealth fighter I can't get to the prince's bedroom. Why? Say "hi!" to Dibby, Divvy and Rufus. Can you send me *Street Fighter II*. Ace. Peace!

A This is one sure-fire way not to get a letter printed. First of all, it should have been sent to the Helping Hand section. Secondly, it doesn't name the game. Third it doesn't say anything new.

Syntax error!!!

Q When my Amiga interfaces with the 471 the screen displays an odd message and the joystick. Should I get my money back?

A Yes, quite. Now believe it or not, the majority of questions we get here at ***Amiga Format*** are like these. If you don't have a clue what the question's about, then imagine how the team feels when they're asked to answer it. We do try to help you all in a caring, sharing, liberal '90s kind of way, but we're not mind readers.

If you're thinking of writing a letter to Amiga Format then there's a way you should phrase your question so that we can answer it. Before writing to us, read this list of tips:

1 Include your full name (that means your christian name too) and address. That way if you've won a prize then we can send it to you.

2 Don't send any SAEs for return. We run to a tight schedule trying to get the magazine out and we don't have time to personally reply to any letters, no matter how pleasantly you phrase them.

3 This is ***Amiga Format***, not *Archimedes Format*, *ST Format* or *Sega Power*. We can only answer queries about Amiga related topics. Unless you're Vanessa Paradis of course, in which case we'd love to help you with any problem at all.

4 If the query is technical then we need to know as much about your Amiga as possible. Include details of which model you own, all the hardware you plug into it, any add-ons you've added on and which software you boot your machine with. Any of these can have an impact on how your Amiga runs.

5 Explain all the details of the problem. What does the screen do? Is there any sound? Does the machine reset? Is this a recurring problem?

6 Keep your question as concise as possible. You may only write to ***Amiga Format*** once ever, but that doesn't mean you should cram every problem you've ever had with your machine into the one letter. Ask us a maximum of two questions per letter and you stand a far greater chance of having it answered.

7 If possible word process or type your letter so that it's nice and legible. If you haven't got access to a type writer or printer then try and write as clearly as possible.

8 The only people who ever get free software or hardware from ***Amiga Format*** are those people who have won prizes, so please don't ask for any. All the games or hardware we get sent is stored here so that we can refer to them again in round-ups and features.

9 Please don't telephone to check whether or not we received your letter. We get about 100 letters a day and, while all letters are read, we can't keep track of individual ones. Do also remember that we work about two months ahead of ourselves. So a letter sent in, say April, probably won't be tackled until the June issue which hits the shelves in mid-May.

10 Try to be as topical as possible. We print letters that we feel will be relevant to as many ***Amiga Format*** readers as possible. Because we've covered most problems people encounter with their A500 already, we're far more likely to cover problems with A600s and A1200s.

11 Before you write to us, do make sure that you've read the manual. Loads of the letters we get are from people who simply can't be bothered to read the literature that comes with their game or hardware.

12 If you know that the problem lies with faulty software or hardware then pursue this with the manufacturer or software house first. If you don't get any satisfaction and the company advertises with ***Amiga Format*** then write to: Alison Winter, Advertising Complaints, Future Publishing, 30 Monmouth Street, Bath, Avon, BA1 2BW.

13 Make sure you address your letter to the appropriate department. Technical queries should be sent to Pat MacDonald c/o Workbench, game queries should be sent to Andy Nuttal c/o Gamebusters and letters to editor should be sent to Marcus Dyson c/o Letters to the Editor. All of these should be sent to ***Amiga Format,*** Future Publishing, 30 Monmouth Street, Bath, Avon BA1 2BW.

Letters to the Editor

Why not send your letters in on disk? You could send some illustration too. That'll make everyone's lives easier. Thank you.

TELL US WHAT YOU THINK OF IT

Your opinion of the *Amiga Format Specials* is crucial to us. So far we've chosen the subjects and type of coverage that we thought would appeal most to you. But now we want to know how we can improve the *Specials*; what you think of the way we handle them; what you would like to see covered in the future, and we'd also like to know a little bit about you. So please take a few minutes out to tick the relevant boxes, then send these pages (or photocopies, or DTP'ed copies or even re-typed copies if you don't want to ruin this *Special*) to the address below. Thanks for your time. And remember, you remain totally anonymous, so say what you feel!

Please send your answers to: *Amiga Format Special* Reader Survey, Future Publishing, FREEPOST, Bath BA1 2XF.

About you...

1) Are you...?
- a) Male ○
- b) Female ○

2) How old are you?
- a) 11 or under ○
- b) 12 to 16 ○
- c) 17 to 18 ○
- d) 19 to 25 ○
- e) 26 to 40 ○
- f) 41 or over ○

3) Where's your ideal holiday venue?
Please state ....

4) Where do you live?
- a) London or SE England ○
- b) SW England ○
- c) Midlands ○
- d) Wales ○
- e) NW England ○
- f) NE England ○
- g) Scotland ○
- h) Northern Ireland ○
- i) Europe ○
- j) Rest of world ○

5) What do you do?
- a) At school ○
- b) At college or sixth-form (16-18 yrs) ○
- c) At Uni' or higher education (18+ yrs) ○
- d) In full or part-time employment ○
- e) Self-employed ○
- f) In the Forces ○
- g) Not currently employed ○

6) If working, how much do you earn a year?
- a) Less than £6,000 ○
- b) £6,000 to £9,999 ○
- c) £10,000 to £14,999 ○
- d) £15,000 to £19,999 ○
- e) £20,000 or above ○

7) Which of these other magazines do you get every month, or occasionally?

	Every month	Occasionally
a) *Amiga Format*	○	○
b) *Amiga Power*	○	○
c) *Amiga Shopper*	○	○
d) *Amiga Computing*	○	○
e) *CU Amiga*	○	○
f) *Amiga Action*	○	○
g) *The One Amiga*	○	○

h) Please what other magazine you would regularly purchase ....

8) What kind of music do you listen to?
- a) Pop/Chart ○
- b)Heavy Metal ○
- c) Dance/House/Hip-hop/Rave ○
- d) Indie ○
- e) Classical ○
- f) Other. Please state ....

9) What transport do you generally use?
- a) Car ○
- b) Bus ○
- c) Train ○
- d) Tube ○
- e) Helicopter ○
- f) Bicycle ○
- g) Motorcycle ○
- h) Other (Please state) ....

10) Do you regularly buy...?
- a) Music on CD ○
- b) Music on vinyl ○
- c) Music on cassette ○
- d) Films on video ○
- e) Other pre-recorded videos ○

11. How do you enjoy yourself, aside from using your Amiga?
- a) Go to the movies ○
- b) Listen to music ○
- c) Watch TV ○
- d) Go out for meals or drinks ○
- e) Take part in sports ○
- f) Watch live sport ○

g) Go to the theatre
h) Go to the opera
i) Paintball battles
j) Play live music
k) Other. Please state..

You and your Amiga

12) Which Amiga do you have? (Tick more than one if need be)
a) A500
b) A500 Plus
c) A600
d) A600HD
e) A1200
f) A1200 & Hard Disk
g) A1500
h) A2000
i) A1000
j) A3000
k) A4000
l) CDTV with keyboard
m) CDTV without keyboard

13) How long (roughly, in months) have you had your Amiga?
a) Less than 1 month
b) 2-6 months
c) 7-12 months
d) 13-36 months
e) Other (Please state below)

....

14) If you've got an A500, A1500 or A2000, have you upgraded your Kickstart and/or Workbench? Would you like to?
a) Have upgraded
b) Planning to upgrade
c) Unsure about upgrading
d) Don't want to upgrade

15) If you've added RAM to your Amiga, how much do you now have in total. Please state this in megabytes (eg 1.5Mb, 6Mb)? If you've got more than one Amiga, please specify all of them.
1st)..........................2nd)..................3rd)........

16) Are you planning to upgrade to an A1200, or another model with the AA chip set?
a) Yes, right away
b) Yes, this year
c) Yes, eventually
d) Not bothered

17) Roughly how much money do you think you have spent on hardware (including the Amiga itself) over the last 12 months?
a) Less than £30
b) £30-£50
c) £51-£100
d) £101-£200
e) £201-£400
f) £401-£700
g) £701-£1,000
h)£1,000-£2,500
i)£2,501-£5,000
j)£5,000 plus

18) Which of the following kinds of hardware do you own? Which do you intend to buy?

	Own	Intend to
a) CD-ROM drive	O	O
b) Extra floppy drive	O	O
c) External HD (A500)	O	O
d) Internal SCSI HD	O	O
e) Internal IDE HD	O	O
f) Internal RAM expansion	O	O
g) External RAM expansion	O	O
h) Accelerator	O	O
i) 24-bit graphics card	O	O
j) Pseudo 24-bit system	O	O
k) PC board/emulator	O	O
l) Replacement mouse	O	O
m) Joystick	O	O
n) Modem	O	O
o) Genlock	O	O
p) MIDI interface	O	O
q) Sound sampler	O	O
r) Video digitiser	O	O
s) Printer	O	O
t) Monitor	O	O
u) TV used as monitor	O	O
v) Other. Please state below		O

....

You and your software

19) What are your favourite types of game? Please rate three in order of preference

	1st)	2nd)	3rd)
a) Platform games	O	O	O
b) Flight simulations	O	O	O
c) Shoot-em-ups	O	O	O
d) Beat-em-ups	O	O	O
e) Adventure/RPGs	O	O	O
f) Strategy/wargames	O	O	O
g) God games	O	O	O
h) Driving games (car)	O	O	O
i) Driving games (bike)	O	O	O
j) Football games	O	O	O
k) Other sports games	O	O	O
l) Puzzle games	O	O	O
m) Misc (Pinball etc)	O	O	O
n) Other (Please state)	O	O	O
....			
o) I don't mind	O	O	O
p) None, I hate games!	O	O	O

20) How often do you buy full-price (£20 or more) games?
a) When I see one I like
b) Every week
c) Every month
d) Other (please state below)

....

e) Never!

21) How often do you buy budget games or compilations?
a) When I see one I like
b) Every week
c) Every month
d) Other (please state)

....

e) Never!

22) Which of the following types of non-games software do you own (not including PD)? Which do you intend to buy?

	Own	Intend to
a) *Deluxe Paint 3*	O	O
b) *Deluxe Paint 4*	O	O
c) Other paint	O	O
d) 3D graphics	O	O
e) Structured drawing	O	O
f) CAD	O	O
g) DTP	O	O
h) Database	O	O
i) Spreadsheet	O	O
j) Accounts	O	O
k) Video titling	O	O
l) Word processor	O	O
m) WP plus graphics	O	O
n) Comm	O	O
o) Music	O	O
p) Educational	O	O
q) Programming	O	O

23) Roughly how much do you think you have spent on non-games software over the last 12 months?
a) Less than £30
b) £31-£60
c) £61-£100
d) £101-£150
e) £151-£200
f) £201-£300
g) £301-£400
h) More than £400

24) Do you buy software from Public Domain (PD) libraries?
a) Often
b) Occasionally
c) Just once
d) Never
e) What's Public Domain?

25) What subjects are you active in (please tick more than one more if required)?
a) Graphics
b) Music
c) Video
d) Programming (games)
e) Programming (serious)
f) DTP
g) Morphing
h) Demos
i) Spreadsheeting
j) Databasing
k) Other (please state)

You and shopping

26) Where do you usually buy software?
a) Major High Street chain store (eg Smith's, Boots, Menzies)
b) Virgin Games Centre
c) Local independent shop
d) Mail order

27) Rate out of 10 the attributes that would convince you to buy from independent retailers (eg not Dixons, Comet, Curry's etc).
a) Service & politeness........................./10
b) Product knowledge........................./10
c) Location........................./10
d) Reputation........................./10

e) Mention in *Amiga Format Specials* ....../10
f) Advert in *Amiga Format Specials* ....../10
g) Mention in *Amiga Format* ....../10
h) Advert in *Amiga Format* ....../10
i) Size and amount of advertising....../10
j) Price....../10
k) Loyalty....../10

28) Rate out of 10 the attributes that would convince you to buy from the larger High Street retailers.

a) Service & politeness....../10
b) Product knowledge....../10
c) Location....../10
d) Reputation....../10
e) Mentioned in *Amiga Format Specials*....../10
f) Advert in *Amiga Format Specials*....../10
g) Mentioned in *Amiga Format*....../10
h) Advert in *Amiga Format*....../10
i) Size and amount of advertising....../10
j) Price....../10
k) Loyalty....../10

29) Rate out of 10 the attributes that would convince you to buy from one of the many Mail Order companies in the UK.

a) Service & politeness....../10
b) Product knowledge....../10
c) Location....../10
d) Reputation....../10
e) Mentioned in *Amiga Format Specials*....../10
f) Advert in *Amiga Format Specials*....../10
g) Mentioned in *Amiga Format*....../10
h) Advert in *Amiga Format*....../10
i) Size and amount of advertising....../10
j) Price....../10
k) Loyalty....../10

30) What would put you off from buying direct from overseas.

a) Fluctuating exchange rates ○
b) Consumer protection ○
c) Distance in the event of faulty goods ○
d) Nothing, I'd like to buy direct ○
e) Other (please state below) ○

....

31) Would you be more or less inclined to buy goods from...

	More	Less
a) GVP	○	○
b) Silica	○	○
c) ASDG	○	○
d) Electronic Arts	○	○
e) Ocean	○	○
f) US Gold	○	○
g) Microprose	○	○
h) Power Computing	○	○
i) Domark	○	○
j) Audition	○	○
k) Indi Direct Mail	○	○
l) Harwoods	○	○
m) Europress Software	○	○
n)ZCL/Calculus	○	○
o) 17 Bit Software	○	○
p) Entertainment Int'	○	○
q) Diamond Computers	○	○
r) Evesham Micros	○	○
s) Trilogic	○	○
t) Gold Disk	○	○
u) Mindscape	○	○
v) Virgin Games	○	○
w) Gremlin	○	○
x) Electronic Arts	○	○
y) Psygnosis	○	○
z) Other (Please state below)		
zi)............	○	○

You and the Specials

32) How many issues of the *Amiga Format Specials* have you bought to date, including this one?

a) **1 issue** ○
b) **2 issues** ○
c) **3 issues** ○
d) **4 issues** ○
e) **5 issues** ○

33) Which issues have you bought?

a) *The Complete Software Guide* ○
b) *The* ***Amiga Format*** *Annual* ○
c) *The Complete Beginners' Guide* ○
d) *The Encyclopaedia of the Amiga* ○

34) Please rate out of 10

a) *The Complete Software Guide*....../10
b) *The* ***Amiga Format*** *Annual*....../10
c) *The Complete Beginners' Guide*....../10
d) *The Encyclopaedia of the Amiga*....../10
e) *The Questions&Answers Special*....../10

35) What usually makes you decide to buy *Amiga Format Specials*? (Please tick only one.)

a) I always get it ○
b) I get it if the subject interests me ○
c) I get it if the cover interests me ○
d) I get it if the style interests me ○
e) I get it whenever I can afford it ○

36) What would convince you into subscribing to the *Amiga Format Specials*?

a)To make certain I get it ○
b) To save money ○
c) To save time and effort ○
d) To protect against possible price rises ○
e) To get a free gift ○

37) If you don't subscribe, please state what you feel is the main reason?

a) I don't want to pay out a lump sum ○
b) I'm not sure I'll want every issue ○
c) I'm afraid my copy might arrive late ○
d) I don't want to be on a mailing list ○
e) I don't want it lost in the post ○

38) By which method did you buy this issue of the *Amiga Format Specials*?

a) Planned visit to newsagent ○
b) Subscription ○
c) Delivered by newsagent ○
d) Reserved by newsagent ○
e) Spontaneous purchase ○

39) Do you think that in design and editorial, the *Amiga Format Specials* are...

a) Too unlike *Amiga Format* ○
b) Too similar to *Amiga Format* ○
c) About right ○
d) Is it anything to do with *Amiga Format*? I really hadn't noticed! ○

40) Rate out of 10 these subjects for possible future *Amiga Format Specials*

a) The *Amiga Format* Music *Special*....../10
b) The *Amiga Format* Graphics *Special*....../10
c) The *Amiga Format* Multimedia *Special*....../10
d) The *Amiga Format* Games *Special*....../10
e) The *Amiga Format* DTP *Special*....../10
f) The *Amiga Format* Hardware *Special*....../10
g) The *Amiga Format* CD-ROM *Special*....../10
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i) The *Amiga Format* Personality *Special*....../10
j) The *Amiga Format* PD *Special*....../10
k) The *Amiga Format* Demo *Special*....../10
l) The *Amiga Format* 'Serious' Software *Special*....../10
j) The *Amiga Format* Programming *Special*....../10
k) The *Amiga Format* Image Processing *Special*....../10

l) Other (please state)....../10

m) Other (please state)....../10

And finally...

41) Who would you most and least like to see interviewed at length in the *Amiga Format Specials*? (tick as many as you like!)

	Oh Yes	No way!	Who?
a) Kelly Sumner	○	○	○
b) Steve Franklin	○	○	○
c) Marcus Dyson	○	○	○
d) John Hare	○	○	○
e) Peter Molyneux	○	○	○
f) Irving Gould	○	○	○
g) Andrew Braybrook	○	○	○
h) David Braben	○	○	○
i) Mev Dinc	○	○	○
j) Jez San	○	○	○
k) Dr Peter Turcan	○	○	○
l) Sam Tramiel	○	○	○
m) Jay Miner et al	○	○	○
n) Roger Bennet	○	○	○
o) Gary Bracey	○	○	○
p) Clement Chambers	○	○	○
q) David Jones	○	○	○
r) Jeff Minter	○	○	○
s) Richard Garriot	○	○	○
t) Chris Bart Williams	○	○	○
u) Chris Waddle	○	○	○
v) Dino Dini	○	○	○
w) Sid Meier	○	○	○
x) Bob Hay	○	○	○
y) Madonna	○	○	○
z) Salman Rushdie	○	○	○
Others, please state below...			
zii)............	○	○	
ziii)............	○	○	

Many thanks for your help, and we'll print the results of this questionnaire in two months time. Thanks once again!

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Please note that we don't need your name and address, and no personal data will be held by us.

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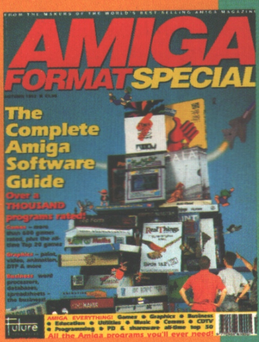

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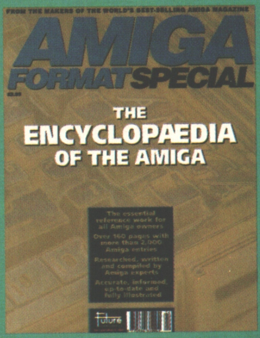

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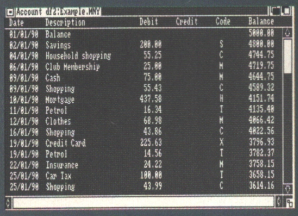

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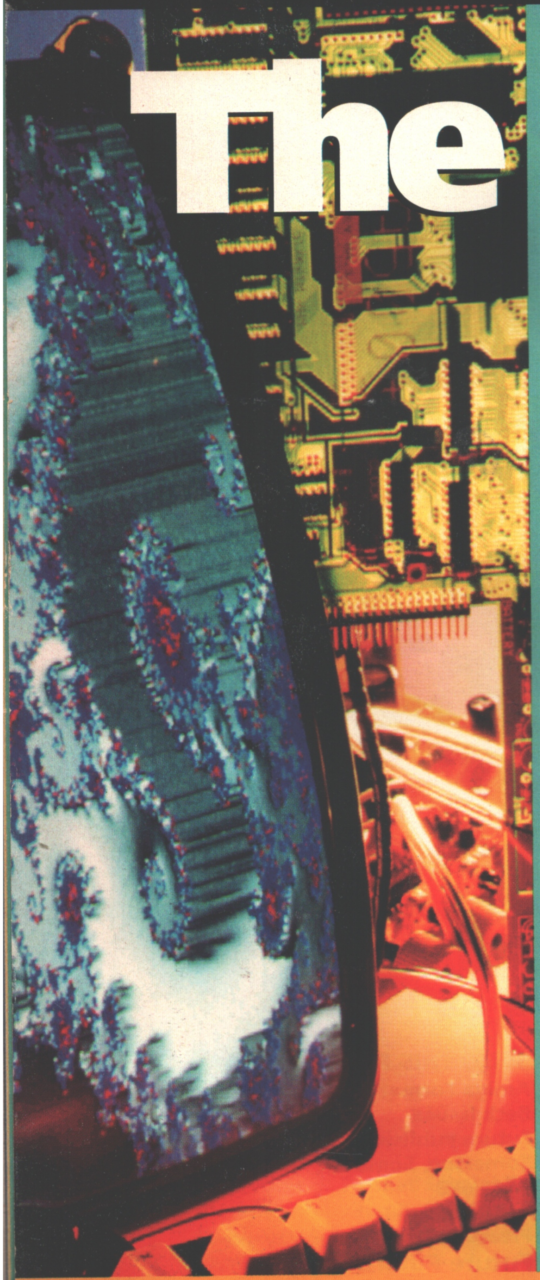

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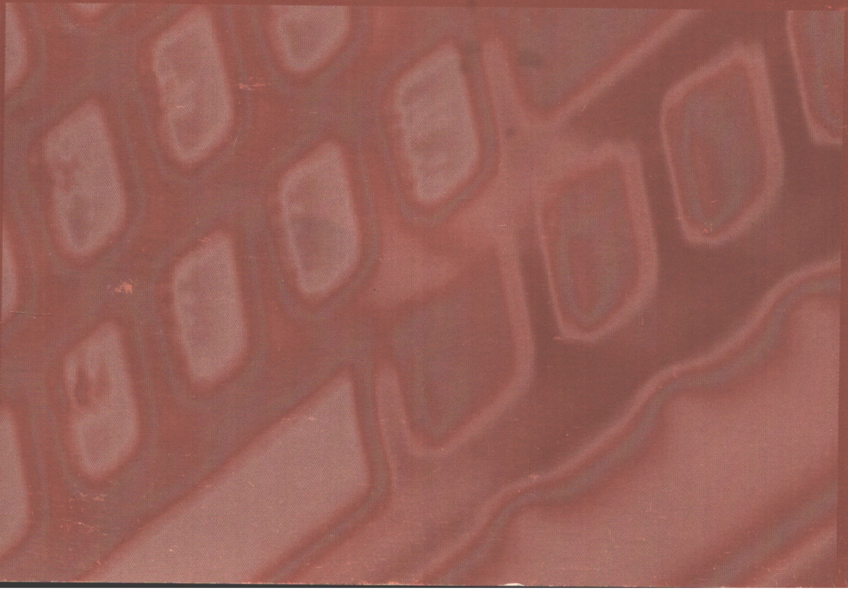

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